Projector Service Manual

Model:
X1130/X1230/X1230S/X1235/X1230K series

Version: Rev2
First Edition (Dec 2008)

RESTRICTIONS ON USE OF MATERIALS:

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Revision List

Version	Release Date	Revision History	Vendor Model Name
Rev0	2008.12.23	First Release	
Rev1	2009.01.07	(1) Update Ch1- 4.0 Packaging data (2) Add Ch2- Serial Number Upgrade SOP (3) Add Ch5- FRU List	
Rev2	2009.02.23	Add X1235/X1230K different part : (1) Ch1- SPEC, (2) Ch2- Serial Number Upgrade SOP (3) Ch3- Disassembly process, Module Assembly Key Point (4) Appd. A- DDC table	

Chapter 1 System Specification

Product Specification

1.0 Optical Performance
2.0 Image Quality
3.0 Mechanical Specification
4.0 Packaging
5.0 Thermal Specification
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1.0 Optical Performance	Tested under 60” (diagonal) image size with Wide projection lens position unless other specified.	
1.1 ANSI Brightness	X1130 : Minimum 1840 Lumens X1230/X1230S : Minimum 1920 Lumens X1235 : Minimum 2080 Lumens X1230K : Minimum 1760 Lumens	
1.2 Brightness Uniformity		
1.2.1 ANSI Uniformity	Minimum 55%	
1.2.2 JBMA Uniformity	Minimum 75%	
1.2.3 Upper-Down unbalance	0.5~2	
1.2.4 Left-Right unbalance	0.6~1.67	
1.3 Contrast Ratio		
1.3.1 ANSI Contrast	Minimum 150:1	
1.3.2 FOFO Contrast	X1130/X1230/X1230S/X1230K : Minimum 1200:1 X1235 : Minimum 1450:1	
1.3.3 Dynamic C/R	Only for X1130/ X1230/X1230S : Minimum 1450:1	
1.3.4 FOFO Contrast with APM	X1130/X1230/X1230S : None X1235 : Minimum 1600:1 X1230K : Minimum 1300:1	
1.4 Light Leakage		
1.4.1 Light Leakage in Active Area	<0.5 lux compared to center point within 60” (Diagonal at 2.3m) image size. Note: This light leakage in Active area is only described as the spot light with obvious shape. It is not included the uniformity difference of the projector for black pattern.	
1.4.2 Light Leakage out of Active Area (Except DMD Defect)	X1130/ X1230/X1230S : <0.65 lux with 53”~80“(Diagonal at 2m) image size. X1235/X1230K : <0.5 lux with 60”~80“(Diagonal at 2.3m, Wide) image size.	
1.5 Color	C/W angle : R80Y37W55C28B70G90	
	X	Y
1.5.1 White	X1130/X1230/X1235/X1230K : 0.309±0.04 X1230S : 0.313±0.04	X1130/X1230/X1235/X1230K : 0.356±0.04 X1230S : 0.350±0.04
1.5.2 Red	X1130/X1230/X1235/X1230K : 0.645±0.04 X1230S : 0.640±0.04	X1130/X1230/X1235/X1230K : 0.341±0.04 X1230S : 0.345±0.04
1.5.3 Green	X1130/X1230/X1235/X1230K : 0.344±0.04 X1230S : 0.345±0.04	X1130/X1230/X1235/X1230K : 0.535±0.04 X1230S : 0.533±0.04
1.5.4 Blue	X1130/X1230/X1235/X1230K : 0.145±0.04 X1230S : 0.144±0.04	X1130/X1230/X1235/X1230K : 0.074±0.04 X1230S : 0.075±0.04
1.6 Color Uniformity	X	Y
1.6.1 White	0.040	0.040

1.6.2 Red	0.040		0.040
1.6.3 Green	0.040		0.040
1.6.4 Blue	0.040		0.040
1.7 Color Gamut	typical 55% compare NTSC		
2.0 Image Quality			
2.1 Throw Ratio	X1130/X1230 : 53”±5% Diagonal at 2m, Wide X1230S : 54.5”±5% Diagonal at 1m X1235/X1230K : 52.5”±3% Diagonal at 2m, Wide		
2.2 Zoom Ratio (tolerance applied)	X1130/X1230 : 1.1 X1230S : 1(Fixed) X1235/X1230K : 1.1±2%		
2.3 Distortion			
2.3.1 Keystone Distortion	<1.0%		
2.3.2 Vertical TV Distortion	<1.0%		
2.3.3 Screen distortion	Only for X1230S : |A,B| <=3mm, |C|<=2.5 mm with 60” image size		
2.4 Projection Offset	X1130/X1230/X1235/X1230K :120% ±5% X1230S : 110% ±5%		
2.5 Focus Range			
2.5.1 Visible Range	X1130/X1230/X1235/X1230K : 1~8 m X1230S : 0.6~8 m		
2.5.2 Clearly Focus Range	X1130/X1230/X1235/X1230K : 1.5~6 m(Spec. defined as item 2.6) X1230S : 0.7~3.6 m		
2.6 Focus			
2.6.1 ☒ Pattern	(1)If pattern can be uniformly focused, pass! (2)If not, check 2.6.2		
2.6.2 Defocus and Flare	X1130/X1230/X1235/X1230K : Defocus: R<=3.5; G<=3.0; B<=3.0 pixel Flare: R<=4.5; G<=4.0; B<=4.0 pixel Slight flare is not counted as flare. X1230S : Defocus: R<=3.5; G<=3.5; B<=3.0 pixel Flare: R<=4.0; G<=4.0; B<=4.0 pixel Slight flare is not counted as flare.		
2.6.3 Focus unbalance	Adjust focus from near to far until one corner clear, difference less than 50 cm		
2.7 Lateral Color		Center of 49”diagonal area	All other area
	R-G	<2/3	<1
	G-B	<2/3	<1
	R-B	<1	<1
2.8 Image Quality			
2.8.1 DMD Image Quality			
2.8.2 Image Imperfection			
2.8.3 Image Shadow or Blur	setups 1. X1130/X1230 : 53” (Diagonal at 2m) image size.		

	X1230S : 54.5” (Diagonal at 1m) image size. X1235/X1230K : 60” (Diagonal at 2.3m, Wide) image size. 2. Default preset mode “ Dynamic” 3. Full white pattern to check the image. Let the projector on the desk (don’t move it up/down or left/ right) and just inspect the pattern.	
3.0 Mechanical Specification		
3.1 Dimensions	264 x 225 x 95 mm (L x W x H)	
3.2 Weight	X1130/X1230/X1235/X1230K : <2300g X1230S : <2500g	
3.3 Security Slot	Kensington compatible slot 150N break away force	
3.5 Lens Cover	Lens Cover	
3.6 Feet	Fast adjustable foot in front, Adjustable foot and Fixed foot in rear. foot Tilt:0-6° ,right/left: +2.2° /-0.5°	
4.0 Packaging		
4.1 Outside Dimensions	360 x 180 x 297 mm (L x W x H)	
4.2 Weight	X1130/X1230/X1230K : < 4000g X1230S : < 4100g X1235 : <3800g	
5.0 Thermal Specification	Mechanical component temperature at ambience 0~35℃	
5.1 Surface held or touched for short periods	Metal < 65°C; Plastic<85°C	
5.2 Surface which may be touched	Metal	Plastic
	<65°C	<85°C
5.3 Exhaust Air	<95°C	
6.0 Environmental		
6.1 Temperature	Operating	0~35°C, without condensation
	Storage	X1130/X1230/X1230S : -20~60℃, without condensation X1235/X1230K : -30~65℃, without condensation
6.2 Humidity	Operating	10~90%RH, without condensation
	Storage	10~90%RH, without condensation
6.3 Audible Noise Level	Typical	X1130/X1230/X1230S : Normal mode: 32dBA @ 25℃ Eco mode: 27dBA @ 25℃ X1235 : Normal mode: 33dBA @ 25℃ Eco mode: 28dBA @ 25℃ X1230K : Normal mode: 34dBA @ 25℃ Eco mode: 29dBA @ 25℃
	Maximum	X1130/X1230/X1230S : Normal mode: 34dBA @ 25℃ Eco mode: 29dBA @ 25℃ X1235 : Normal mode: 35dBA @ 25℃ Eco mode: 30dBA @ 25℃ X1230K : Normal mode: 36dBA @ 25℃ Eco mode: 31dBA @ 25℃

6.4 Altitude	Operating: 1. 12,000 feet @ 25℃ (3.5 hours) 2. Altitude Ramp rate: <= 3500 feet per minute (1 hour) Non-operating: 40,000 feet @ -30 ℃ (1 hour)	
7.0 Regulatory	Safety	X1130/X1230/X1230S : CB, GS, UL, CUL, PSE, CCC X1235/X1230K : CB, GS, UL, CCC
	EMC	X1130/X1230/X1230S : CE, FCC, VCCI X1235/X1230K : CE, FCC
	ESD	
8.0 Reliability		
8.1 MTBF	40000 hours except DMD chip, Color wheel, Lamp, Fan and Ballast	
8.2 Lamp Lifetime	Normal : 3000 hours (50% brightness maintenance) Eco: 4000 hours	
9.0 Power Requirements	Adhere to Section “Power Supply Specification”	
9.1 Power Supply (Normal)	VAC 100 – 240 (50/60Hz),	
9.2 Power consumption	Typical	X1130/X1230/X1230S/X1230K : 280W Max. X1235 : 285W Max.
	Standby	5W Max. (X1235/X1230K :loop through is disabled)
9.3 Power Connector	IEC-06	
10.0 Panel Specification		
10.1 Type	X1130 : 0.55” SVGA LVDS Type-X DMD X1230/X1230S/X1235 : 0.55” XGA 2xLVDS Super Value Type-X DMD X1230K : 0.55” XGA 2xLVDS Super Value Type-X DMD	
10.2 Pixels	X1130 : H: 800 X V: 600 X1230/X1230S/X1235/X1230K : H: 1024 X V: 768	
10.3 Color Depth	24 Bits (16770000 colors)	
11.0 Compatibility	Adhere to Section “Electrical Specification”	
11.1 PC	PC Compatible 640X480 → 1024X768, compressed 1920X1080; Composite-Sync; Sync-on-Green	
11.2 Video	NTSC/ NTSC4.43/ PAL (Including PAL-M, PAL-N)/ SECAM/ PAL60/	
11.3 YpbPr	NTSC (480i)/ 480p/ PAL (576i)/ 576p, HDTV (720p/1080i/ 1080p)	
11.4 DDC	EDID 1.3	
12.0 Image Interface	Adhere to Section “Electrical Specification”	
12.1 Analog RGB Input	15 pin D-Sub (Female) x 1 G(Y): Video amplitude 0.7/1.0 Vp-p : Impedance 75Ω RB(CbCr): Video amplitude 0.7 Vp-p : Impedance 75Ω HD/VD/CS: TTL Level	
12.2 Video Input	RCA jack (Yellow)	

	Video amplitude 1.0 V_{p-p} : Impedance 75Ω
12.3 S-Video Input	4 pin Mini-Din (Female) Y: Luminance amplitude 1.0 V_{p-p} : Impedance 75Ω C: Chroma amplitude 0.286 V_{p-p} : Impedance 75Ω
12.4 YPbPr Input	15 pin D-Sub (Female) x 1 Y: Luminance amplitude 1.0 V_{p-p}: Impedance 75Ω PbPr/C_bC_r: Chroma amplitude 0.7 V_{p-p} : Impedance 75Ω
12.5 Analog RGB Output	X1130 : None X1230/X1230S/X1235/X1230K : 15 pin D-Sub (Female) x 1 G(Y): Video amplitude 0.7/1.0 Vp-p : Impedance 75Ω RB(CbCr): Video amplitude 0.7 Vp-p : Impedance 75Ω HD/VD/CS: TTL Level
13.0 Control Interface	
13.1 IR Receiver	IR Receiver x 2 (Front/Top) Angle: ±0° Distance 0~10m ; ±40° Distance 0~8m
13.2 Serial Connector	RS232 Mini DIN 3pin, command table adhere to Appendix A
14.0 User Interface	Adhere to Section “Electrical Specification”
14.1 Operator Keypad	9 Keys: Power ; Source ; Resync ; e ; Menu ; Left ; Right ; Up(Keystone-) ; Down(Keystone+)
14.2 Indicators	3 LEDs: Power On/Off Status; Lamp Status; Temperature Status
14.3 Electric Keystone	Manual and Auto vertical keystone and adjustable range ±40°
15.0 Audio	X1130 : None X1230/X1230S/X1235/X1230K : see 15.1~15.3
15.1 PC Audio Input	Φ3.5mm stereo mini jack 500mVrms 10 KΩ or more
15.2 Audio output	Φ3.5mm mono mini jack
15.3 Speaker	X1130 : None X1230/X1230S/X1235/X1230K : Speaker 8Ω 5W X 1, Amplifier 1W X1

Electrical Specification

1. Timing Table

The PC timing is as following:

Resolution	Mode	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)
640 x 480	VGA_60	59.940	31.469	25.175
	VGA_72	72.809	37.861	31.500
	VGA_75	75.000	37.500	31.500
	VGA_85	85.008	43.269	36.000
720 x 400	720x400_70	70.087	31.469	28.3221
	720x400_85	85.0	37.9	35.5
800 x 600	SVGA_56	56.0	35.2	36.0
	SVGA_60	60.317	37.879	40.000
	SVGA_72	72.188	48.077	50.000
	SVGA_75	75.000	46.875	49.500
	SVGA_85	85.061	53.674	56.250
1024 x 768	XGA_60	60.004	48.363	65.000
	XGA_70	70.069	56.476	75.000
	XGA_75	75.029	60.023	78.750
	XGA_85	84.997	68.667	94.500
1152 x 864	SXGA_70	70.0	63.8	94.5
	SXGA_75	75.0	67.5	108.0
1280 x 1024	SXGA_60	60.020	63.981	108.000
1280 x 960	1280 x 960_60	60.000	60.000	108
640x480@60Hz	Mac G4	59.94	31.469	25.17
640x480@67Hz	MAC13	66.667	35.000	30.240
800x600@60Hz	Mac G4	60.317	37.879	40.0
832x624@75Hz	MAC16	74.546	49.722	57.280
1024x768@60Hz	Mac G4	60.004	48.363	65.0
1024x768@75Hz	MAC19	75.020	60.241	80.000
1152x870@75Hz	MAC21	75.06	68.68	100.00
1280 x 768	WXGA_60	60.0	47.4	68.25
	WXGA_75	74.89	60.29	102.25
1280 x 720	WXGA_60	59.94	45.0	74.25
1280 x 800	WXGA_60	59.81	49.702	83.5
1440 x 900	WXGA+_60	59.887	55.935	106.500
1366 x 768	acer_16:9	59.79	47.712	85.5
1024 x 576	acer_timing	59.899	35.88	46.5
1024 x 600	acer_timing	60.0	37.5	50.4

YPbPr support timing is as following:

Signal format	fh(kHz)	fv(Hz)
480i(525i)@60Hz	15.73	59.94
480p(525p)@60Hz	31.47	59.94
576i(625i)@50Hz	15.63	50.00
576p(625p)@50Hz	31.25	50.00
720p(750p)@60Hz	45.00	60.00
720p(750p)@50Hz	37.50	50.00
1080i(1125i)@60Hz	33.75	60.00
1080i(1125i)@50Hz	28.13	50.00

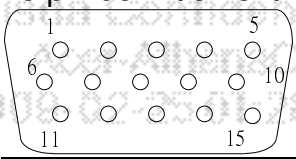
Video, S-Video support timing is as following:

Video mode	fh(kHz)	fv(Hz)	fsc(MHz)
NTSC	15.73	60	3.58
PAL	15.63	50	4.43
SECAM	15.63	50	4.25 or 4.41
PAL-M	15.73	60	3.58
PAL-N	15.63	50	3.58
PAL-60	15.73	60	4.43
NTSC4.43	15.73	60	4.43

2. Characteristics of inputs/outputs

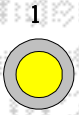
Signal	Parameter	Min	Type	Max	
RDATA GDATA BDATA	Impedance		75		Ohm
	Amplitude		0.7		Volts peak-to-peak
	Black pedestal		0		Volts
	Pixel Clock		110		M Hz
GDATA_SOG	Impedance		75		Ohm
	Amplitude		1		Volts peak-to-peak
	Video amplitude		0.7		Volts peak-to-peak
	Sync amplitude		0.3		Volts peak-to-peak
	Black pedestal		0		Volts
	Pixel Clock		110		M Hz
HDATA	Impedance		1		K ohm
	Amplitude, low level	0		0.8	volt
	Amplitude, high level	2.5		5	Volt
	Frequency	31		93	K Hz
VDATA	Impedance		1		K ohm
	Amplitude, low level	0		0.8	volt
	Amplitude, high level	2.5		5	Volt
	Frequency	48		86	Hz
SDADATA	Amplitude, low level	0		0.8	volt
	Amplitude, high level	2.5		5	Volt
SCLDATA	Amplitude, low level	0		0.8	volt
	Amplitude, high level	2.5		5	Volt
RXD	Amplitude	-25		25	Volt
TXD	Amplitude	-13.2		13.2	Volt
CVBS Luminance	Amplitude, total (video+ sync)		1		Volts peak to peak
	Amplitude, video		0.7		Volts peak to peak
	Amplitude, sync		0.3		Volts peak to peak
	Impedance		75		ohm
CVBS Chroma	Amplitude		300		m Volts peak to peak
	Impedance		75		ohm
Audio (Only for X1230/X1230S)	Impedance (audio in)		10		Kohm
	Amplitude (audio in)	0		0.50	Volts rms
	Bandwidth	300Hz		16kHz	
	S/N Ratio		40		%
	Total Harmonic Distortion			10	%

3. Electrical Interface Character
Interface Definition
15 pin definition of the mini D-sub male for DDC2B protocol



Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
1	Red video (Pr)	2	Green Video (Y)	3	Blue Video (Pb)	4	NC
5	NC	6	Red Video Return	7	Green Video Return	8	Blue Video Return
9	DDCP 5V	10	GND	11	GND	12	Bi-directional data (SDA)
13	Horizontal Sync	14	Vertical Sync	15	Data clock (SCL)		

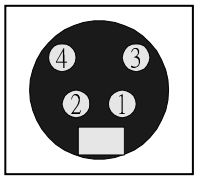
Video Input



Composite input

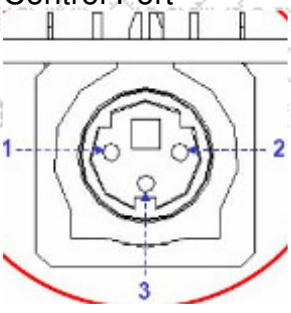
Pin	Definition
1	Composite video input

S-Video input



Pin	Description
1	GND
2	GND
3	Luminance
4	Chroma

Control Port



Pin	Description
1	TX
2	RX
3	GND

4. Functionality

The Following functionality will be supported: (Detailed description refer to SW Specification)

Functionality	Data (Computer)	Video/S-Video	YPbPr/YCbCr
Display Mode	YES	YES	YES
Brightness	YES	YES	YES
Contrast	YES	YES	YES
Saturation	NO	YES	YES
Tint	NO	YES	YES
Sharpness	NO	YES	YES
Color Temp	YES	YES	YES
H. Position	YES	NO	NO
V. Position	YES	NO	NO
H. Phase	YES	NO	NO
H. Size	YES	NO	NO
DeGamma	YES	YES	YES
ColorR	YES	YES	YES
ColorG	YES	YES	YES
ColorB	YES	YES	YES
Projection	YES	YES	YES
Auto Keystone	YES	YES	YES
Keystone	YES	YES	YES
Source Lock	YES	YES	YES
Location	YES	YES	YES
Security	YES	YES	YES
Reset	YES	YES	YES
Closed Caption	NO	YES(NTSC)	NO
Ecco Mode	YES	YES	YES
High Altitude	YES	YES	YES
Lamp Reminding	YES	YES	YES
Lamp Hour Reset	YES	YES	YES
Timer Location	YES	YES	YES
Timer Start (or Stop)	YES	YES	YES
Timer Period (Minutes)	YES	YES	YES
Timer Display	YES	YES	YES
Language	YES	YES	YES
Below items for X1230/X1230S/X1235/X1230K			
Volume	YES	YES	YES
Mute	YES	YES	YES
Power On/Off Volume	YES	YES	YES
Alarm Volume	YES	YES	YES
Timer Volume	YES	YES	YES

External Message indicator (Detailed description refer to SW Specification)

Message	Occasion
D-sub /Composite Video /S-Video Searching	The system does not detect the signal
Input Not Supported	The signal is over the specification
Lamp is approaching the end of its useful life in full power operation. Replacement suggested!	Lamp Hour is at 2970 hours

Power Supply Specification

1. Input Power Specification

Specification	Description
Input Voltage Range	The unit shall meet all the operating requirements with the range 90 ~ 264 VAC
Frequency Range	The unit shall meet all the operating requirements with an input frequency range : X1130/X1230/X1230S/X1235 : 50 Hz ~ 60 Hz X1230K : 47 Hz ~ 63 Hz
Power Consumption	Normal operation: X1130/X1230/X1230S/X1230K : 280W (Max) X1235 : 285W (Max) standby mode: < 5W(for X1235/X1230K : loop through is disabled)
Regulation Efficiency	80 % (typical) measuring at 115Vac and full load

2. Output Power Requirement

The power supply can provide DC output as below :

NO.	Voltage	Regulation	Load Current Range	Ripple & Noise
1	+12 V	±10 %	0.15 A ~ 2.5 A	300 mV

3. Lamp Power specifications

Specification	Description
Applicable Lamp	X1130/X1230/X1230S/X1230K : Philips 189W, AC operation. X1235 : Philips 210W, AC operation. Applicable ballast = 200W.
Starting pulse from Ignitor	

System Block Diagram

Hardware Architecture

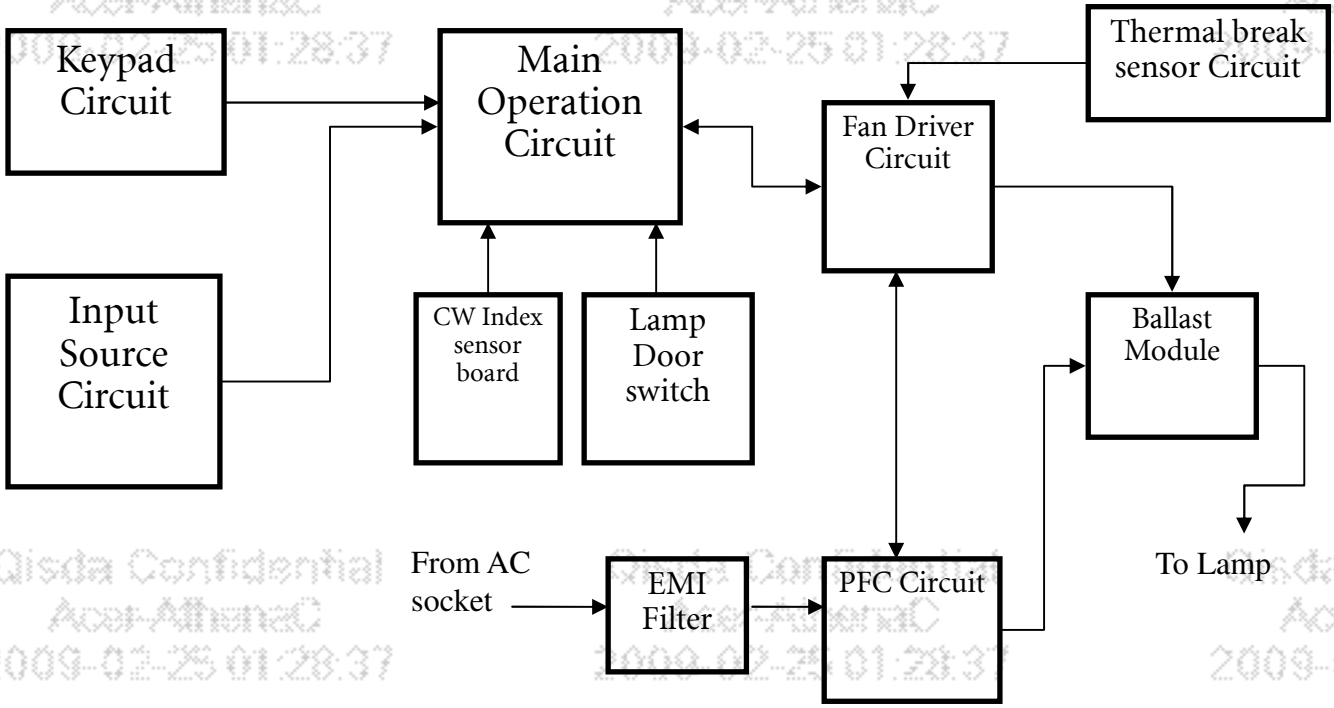


Figure 1 Hardware Architecture

Main Board

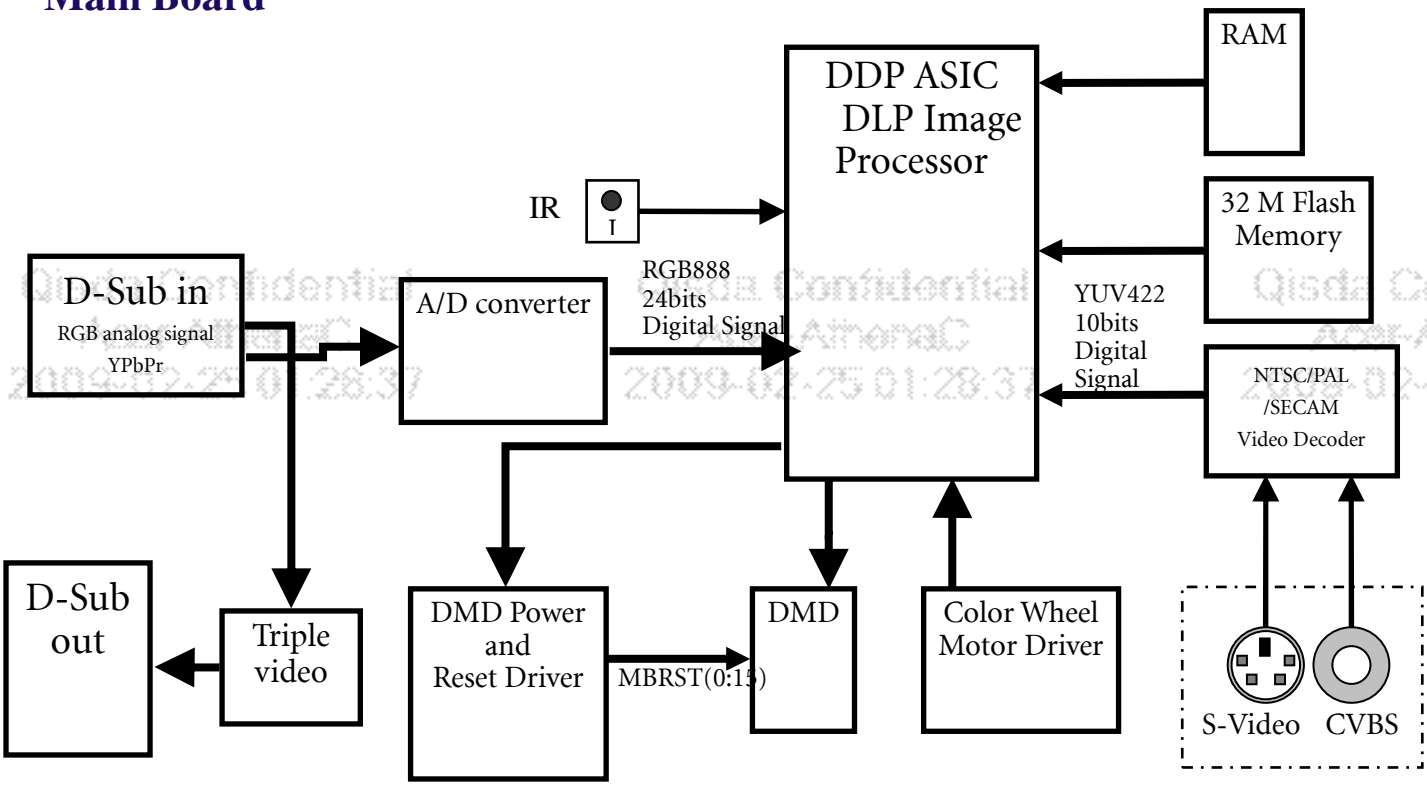
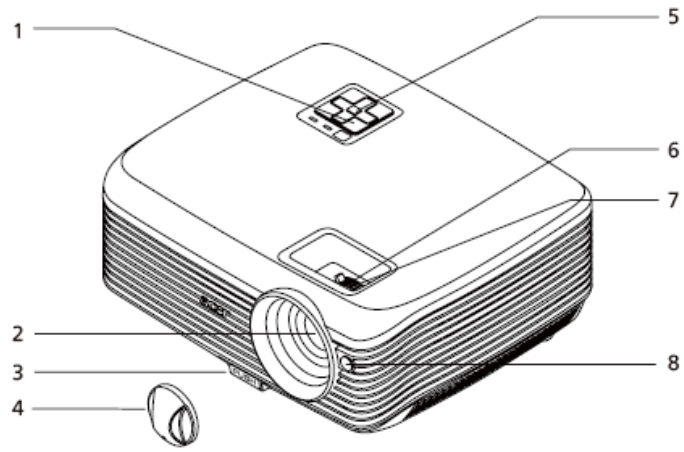


Figure 2 Main board & Input board BLOCK DIAGRAM

Product Overview

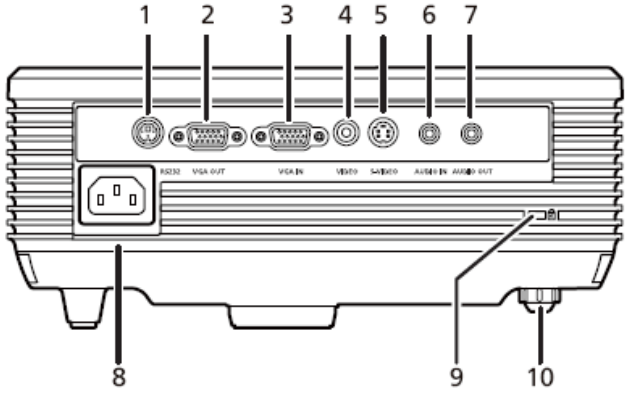
Front / upper side



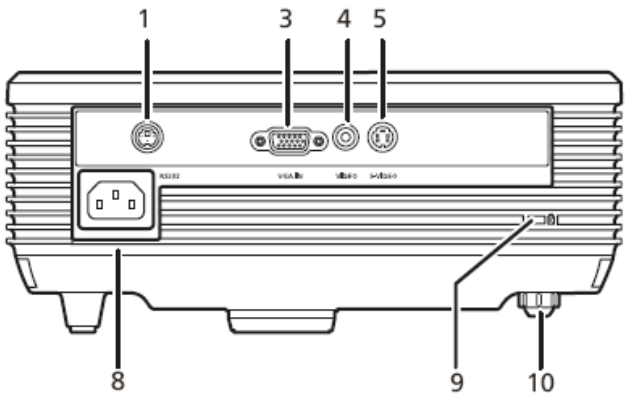
#	Description	#	Description
1	Power key and Power indicator LED	5	Control panel
2	Projection lens	6	Zoom ring
3	Elevator button	7	Focus ring
4	Lens cap	8	Remote control receiver

Rear side

(X1230/X1230K/X1230S/X1235)

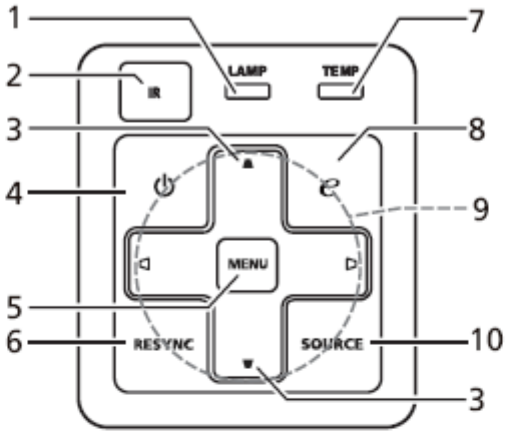


(X1130)



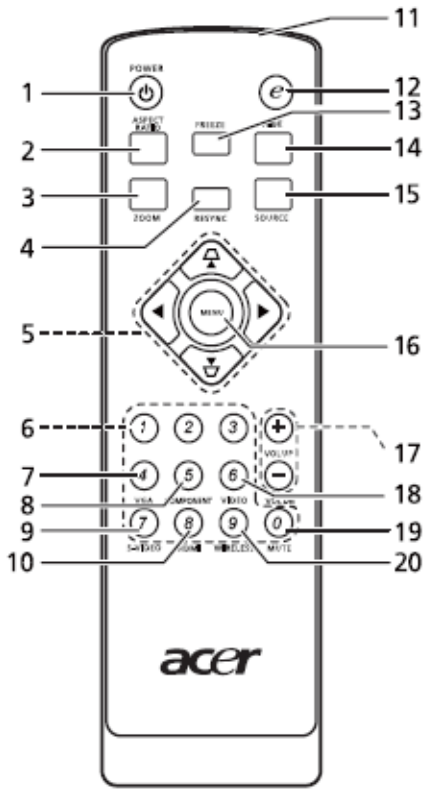
#	Description	#	Description
1	RS232 connector	6	Audio input connector
2	Monitor loop-through output connector	7	Audio output connector
3	PC analog signal/HDTV/ component video input connector	8	Power socket
4	Composite video input connector	9	Kensington™ lock port
5	S-Video input connector	10	Tilt adjusting wheel

Control Panel



#	Function	Description
1	LAMP	Lamp Indicator LED
2	IR	Remote control receiver
3	Keystone	Adjusts image distortion caused by tilting projection (±40 degrees).
4	Power key and Power indicator LED	Refer to the "Turning the Projector On/ Off" section.
5	MENU	• Launches the Onscreen Display (OSD) menu, returns to the previous step for the OSD menu operation or exits the OSD menu. • Confirms your selection of items.
6	RESYNC	Automatically synchronizes the projector to the input source.
7	TEMP	Temp Indicator LED
8	Empowering key	Enables unique Acer functions: eView, eTimer, ePower Management.
9	Four directional select keys	Selects items or makes adjustments to your selection.
10	SOURCE	Chooses RGB, component video, S-Video, composite video or HDTV source.

Remote Control Layout



#	Function	Description
1	Power	Refer to the "Turning the Projector On/Off" section.
2	ASPECT RATIO	To choose the desired aspect ratio (Auto/4:3/16:9).
3	ZOOM	Zooms the projector display in or out.
4	RESYNC	Automatically synchronizes the projector to the input source.
5	Keystone	Adjusts image distortion caused by tilting projection (±40 degrees).
	Four directional select keys	Selects items or makes adjustments to your selection.
6	Keypad 0~9	Press "**0~9**" to input a password in the "Setting > Security" OSD.
7	VGA	To change source to VGA. This connector supports analog RGB, YPbPr (480p/576p/720p/1080i), and YCbCr (480i/576i).
8	COMPONENT	To change source to Component video. This connection supports YPbPr (480p/576p/720p/1080i) and YCbCr (480i/576i).
9	S-VIDEO	To change source to S-Video.

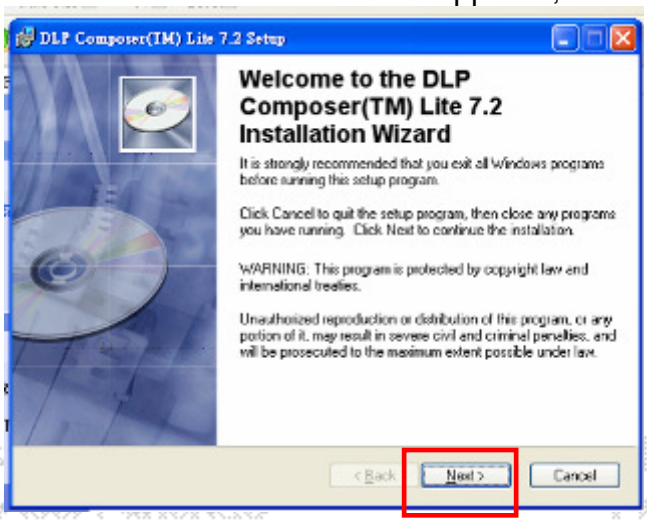
#	Function	Description
10	HDMI™	To change source to HDMI™ (for the model with HDMI™ connector).
11	Infrared transmitter	Sends signals to the projector.
12	Empowering key	Enables unique Acer functions: eView, eTimer, ePower Management.
13	FREEZE	To pause the screen image.
14	HIDE	Momentarily turns off the video. Press "**HIDE**" to hide screen image; press again to display the image.
15	SOURCE	Chooses RGB, component video, S-Video, composite video or HDTV source.
16	MENU	• Launches the Onscreen Display (OSD) menu, returns to the previous step for the OSD menu operation or exits the OSD menu. • Confirms your selection of items.
17	VOL UP/VOL DN	Increases/decreases the volume.
18	VIDEO	To change source to Composite video.
19	MUTE	To turn on/off the volume.
20	WIRELESS	Displays the image which is wirelessly transmitted from the PC to the projector via the "Acer eProjection Management" utility. (for wireless model)

Chapter 2 System Utilities

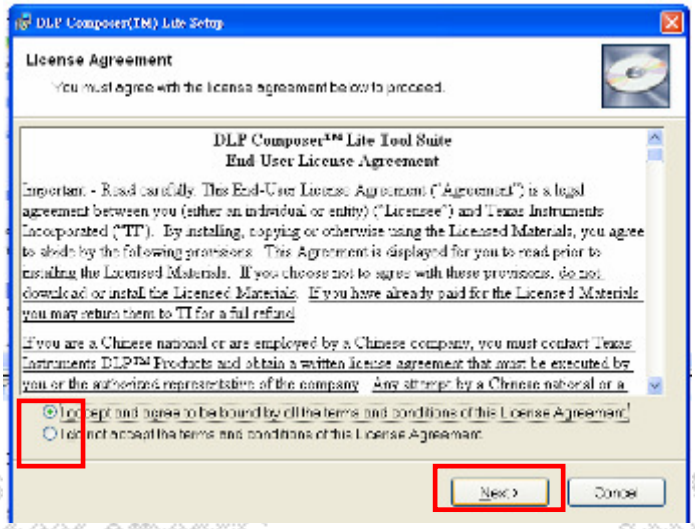
Firmware Upgrade SOP

DLP Composer LIte Installation Process

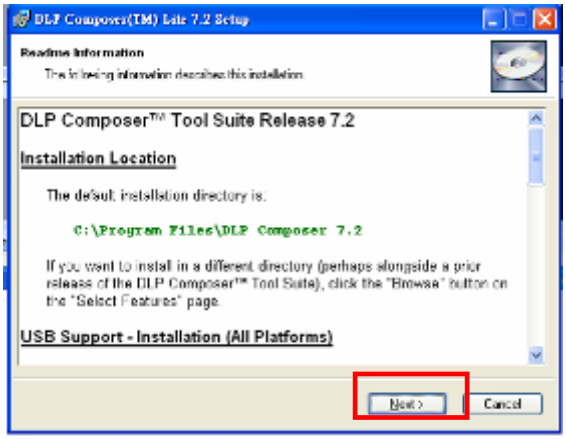
1. Double click the Setup file for DLP Composer Lite to start to install program.
2. When the Installation Wizard appears, click “Next”.

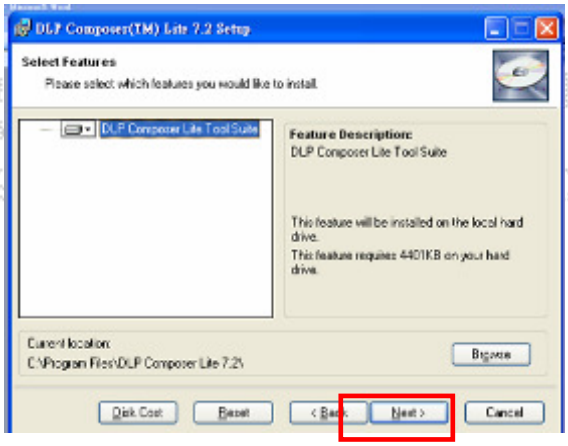


3. Select to accept the License Agreement, than click “Next”

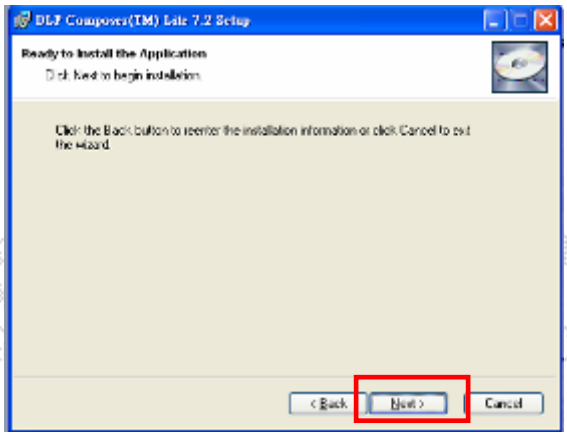


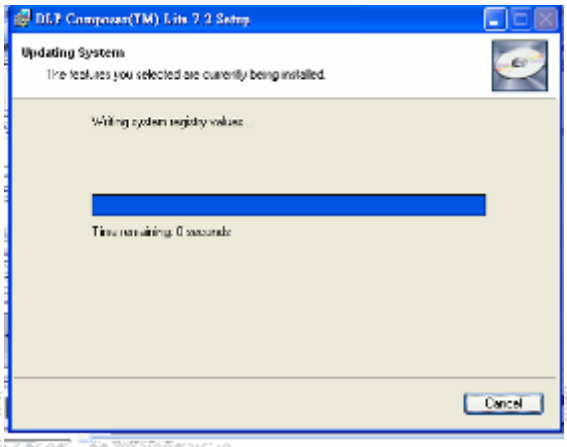
4. Click “Next” in the following steps to continue installation process.



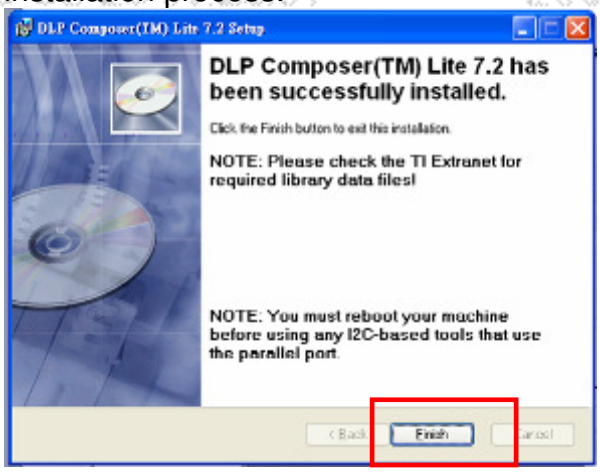


Note:
The default installation directory is:
C:\Program Files\DLP Composer Lite 7.2
If you want to install to a different directory (perhaps alongside a prior release of DLP Composer™ Lite), click the "Browse" button on the "Select Features" page.



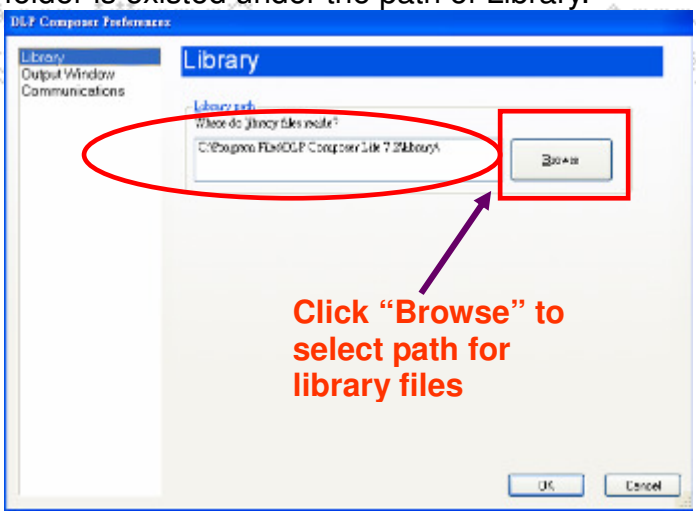


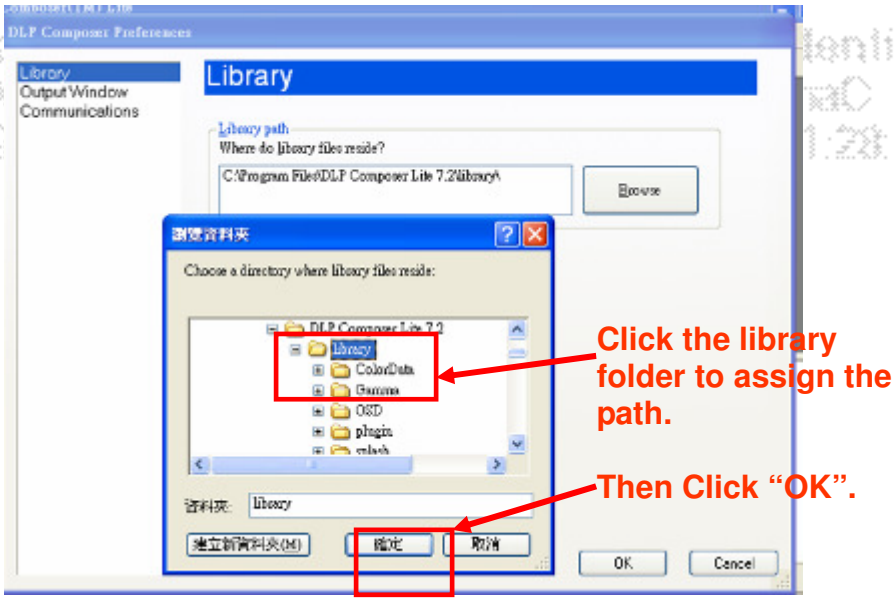
5. When finishing installation, click “Finish”, and then restart your computer to complete the installation process.



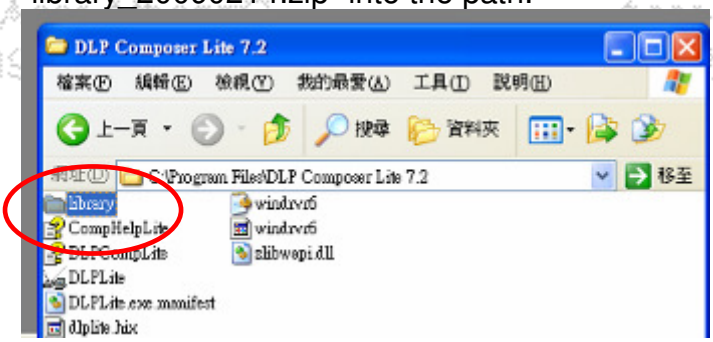
(1) Select Library

1. When start to use this program to download at first time, you need to check if the library folder is existed under the path of Library.





2. Check if there are library files in the assigned path. If not, unzip the file “library_20090214.zip” into the path.



(2) Download Procedure

- **How to download**

Hardware required

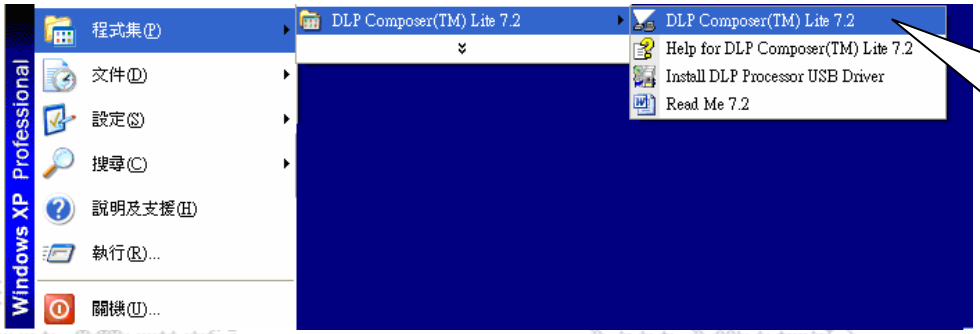
1. Standard RS232 Download cable
2. Personal computer or laptop computer

Software required

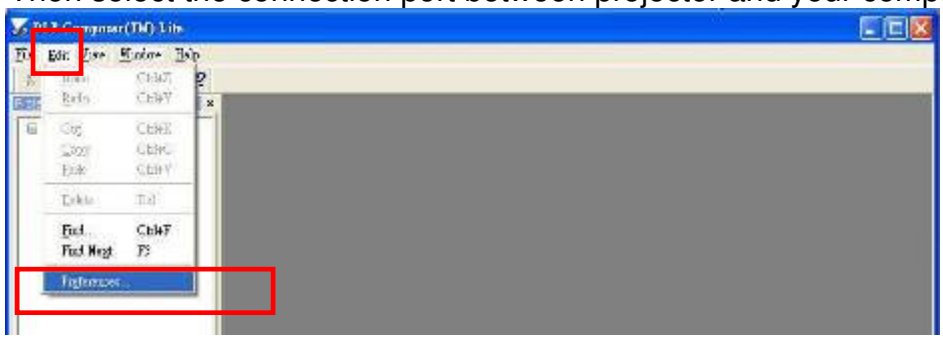
1. DLP Composer Lite program
2. New version FW

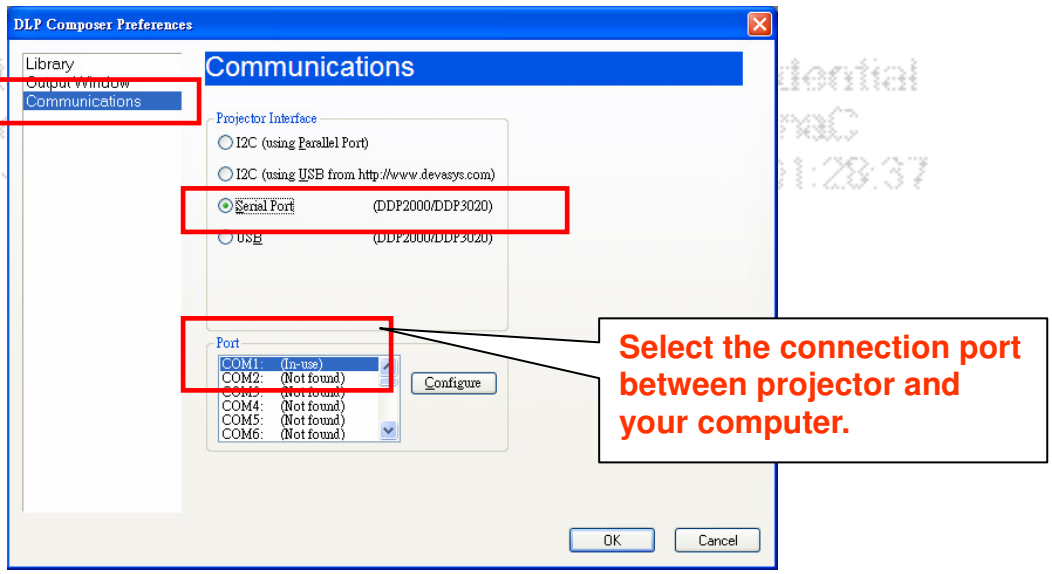
Download procedure

1. Prepare the download equipment: RS232 cable connect to PC and projector
2. Plug power cord into projector , and the projector will be in stand by mode
3. Execute DLP composer Lite program from your “START” ->”Program files” menu of Windows.

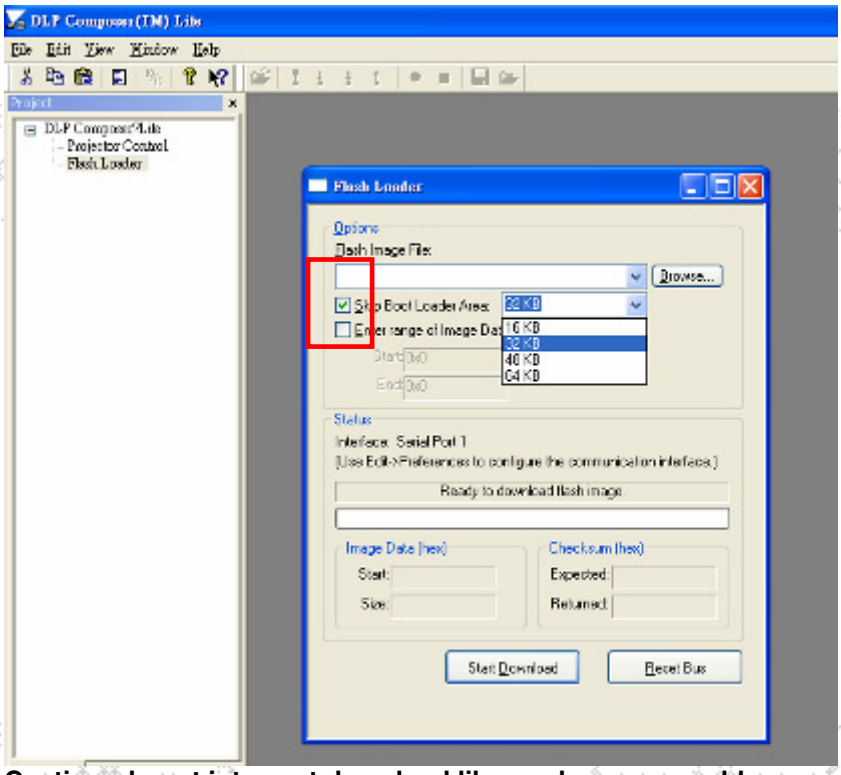


4. Check communication is RS232 (Serial Port):
   Select “Edit”->”Preference”->”Communications”->”Serial Port”
   Then select the connection port between projector and your computer.



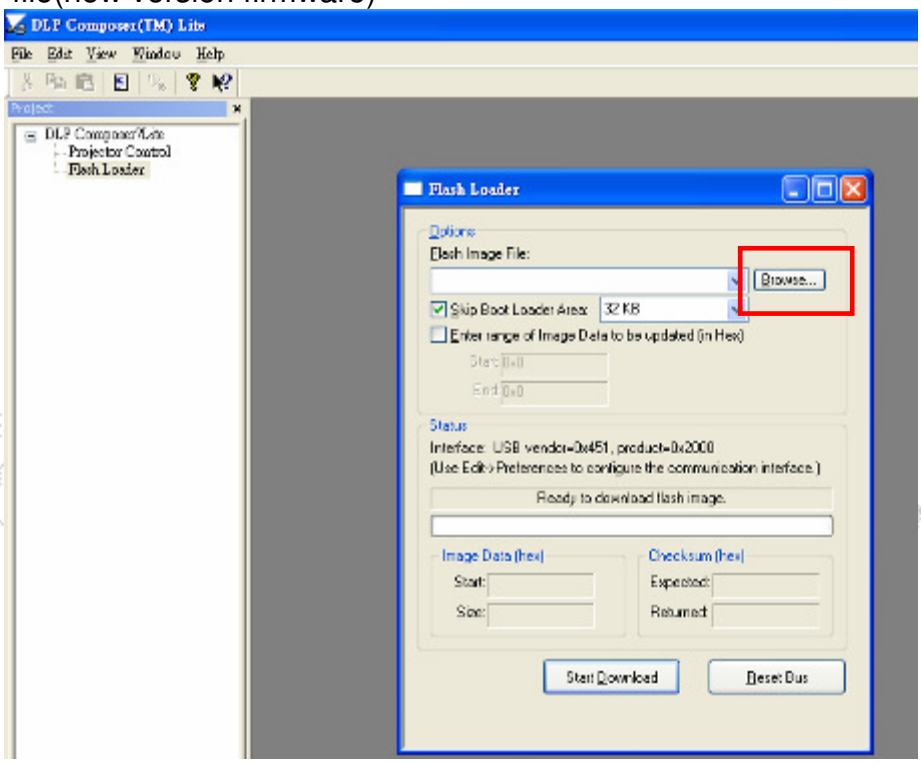


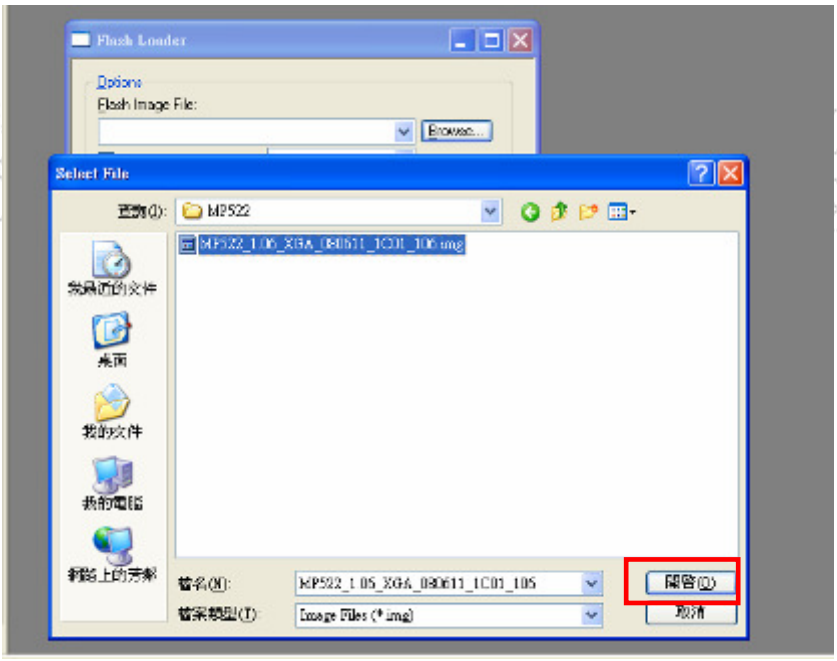
5. Select “Flash Loader” and make sure to check on “Skip boot Loader Area”. (Select 32KB).



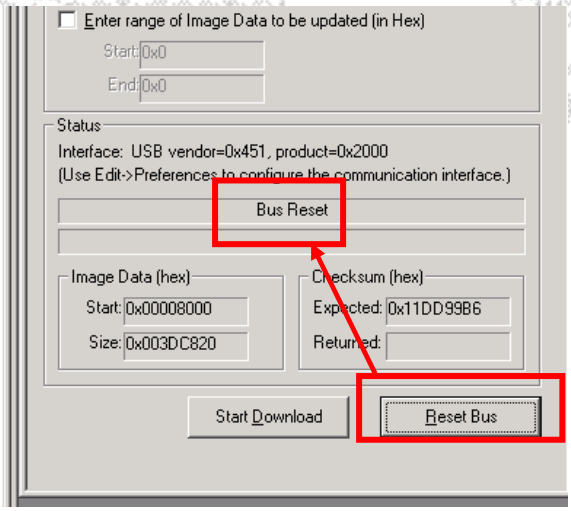
Caution: do not interrupt download like unplug power cable.
If you skip boot loader Area and interrupt download, Projector would not turn on anymore.

6. Click on “Flash Loader” and “Browse”->select file->”Open” to select the path of the image file(new version firmware)

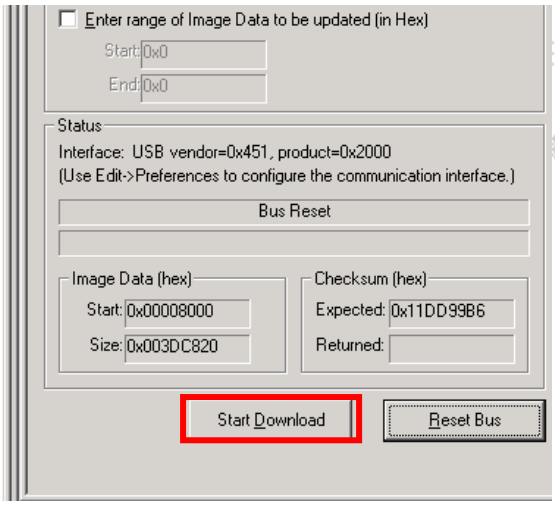


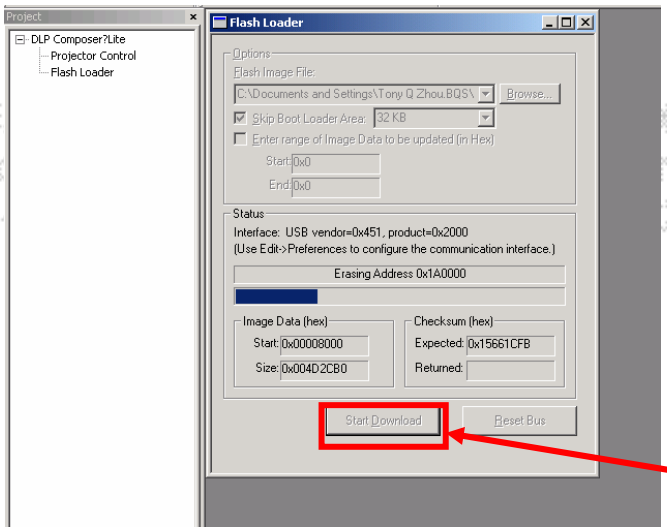


7. Click “Reset Bus” and then check the status that shows “Bus Reset”.



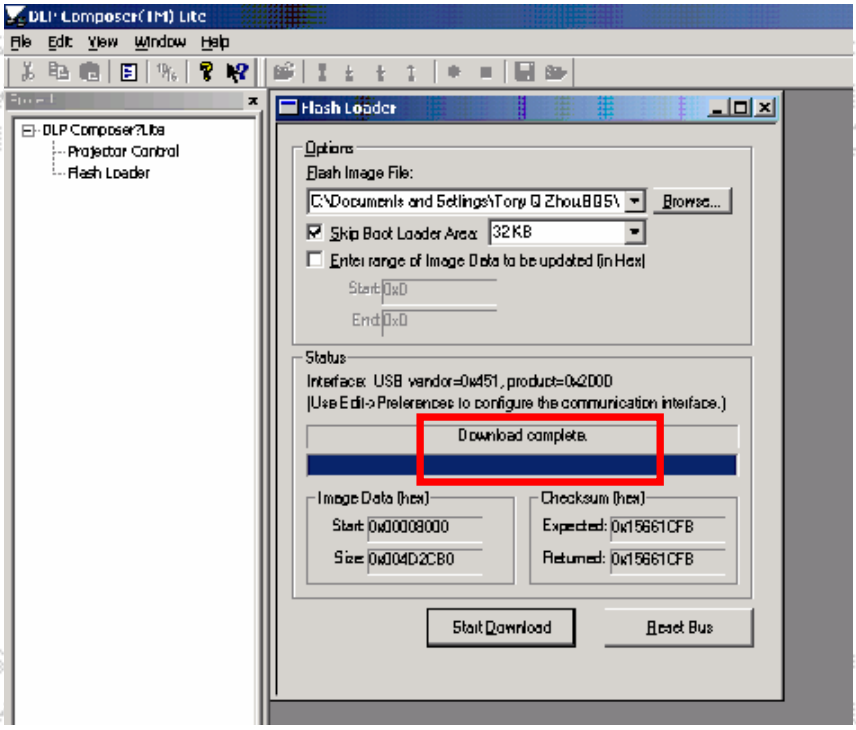
8. Select “Start download” and three LED light orange color





When FW is downloading, "Start Download" becomes disabled.

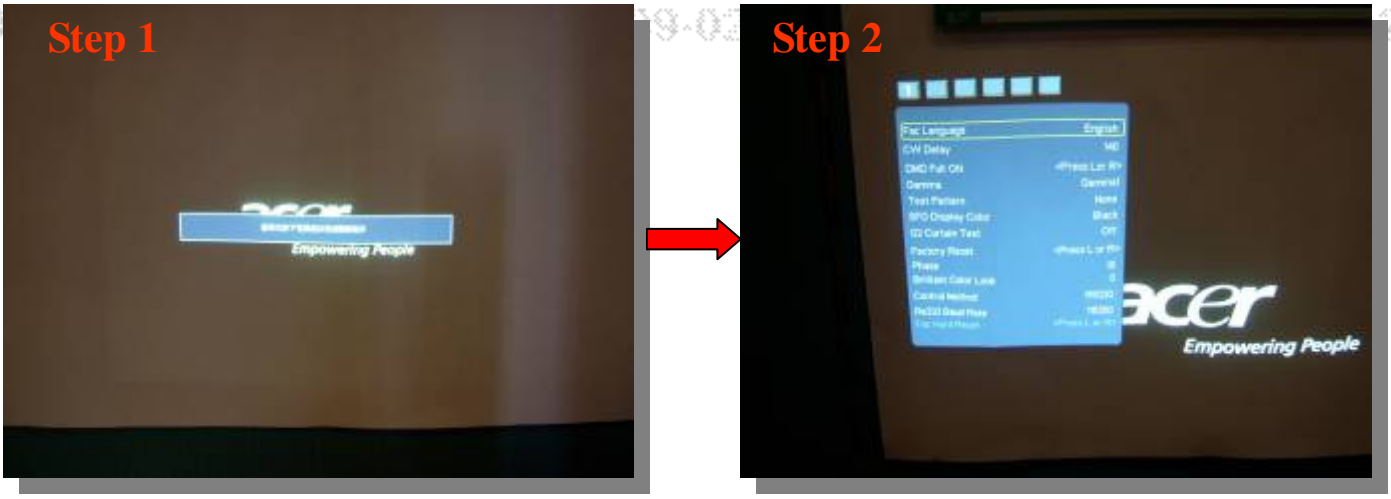
9. After download complete, program will show "Download complete" message, and projector will reset to stand by mode.



10. If program pops out another error message after "Download complete" message appearing, it's ok to skip the error message.
11. After download completing, it's necessary to unplug power cord, then re-plug power cord and restart projector.

Method to enter factory menu

1. Press keypad **Power** and image will show Power Down OSD function
2. Press keypad **Left** twice then press **Menu**, then enter the Factory mode.



EDID Upgrade SOP

Equipment List

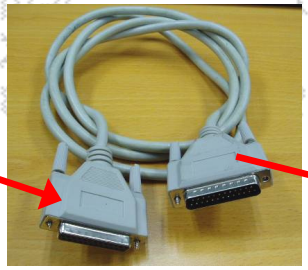
1. PC : with parallel (printer) port
2. EDID Board
3. Printer cable : 25pin male-female (connect PC to EDID board)
4. D-sub cable* : with full 15pin (connect EDID board to Projector)
5. HDMI cable*(connect EDID board to Projector)
6. DVI cable* (connect EDID board to Projector)

(*Note: Not every model's EDID input (D-sub, DVI, HDMI) is the same. Need to check what kind of file you need before download.)

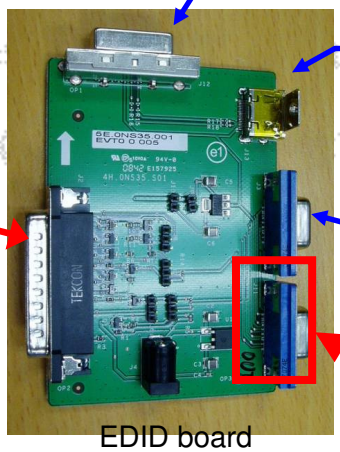
Setup Equipment

1. Connect between PC, EDID board and the Projector:

PC with parallel (printer) port



"25pin male-female cable" (normal printer cable)



EDID board

Link to Projector : For DVI-D DDC download **(no need in X1130/ X1230/ X1230S/ X1235/ X1230K series)**

Link to Projector : For HDMI DDC download **(no need in X1130/ X1230/ X1230S/ X1235/ X1230K series)**

Please ignore this connector

Link to Main board : For D-sub DDC download

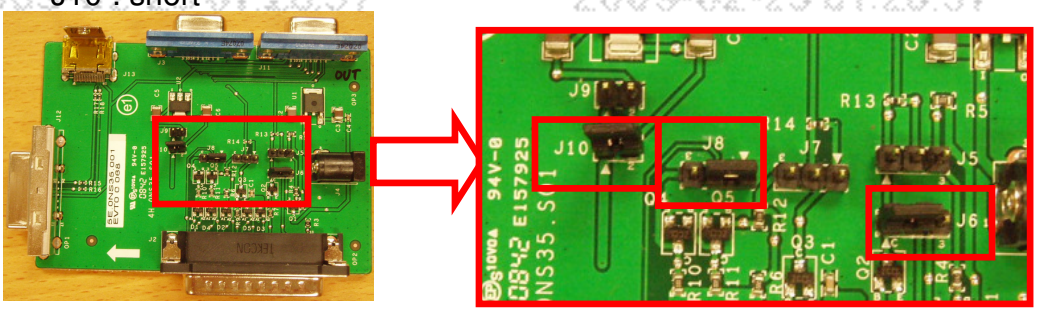
2. Need to set Jumper before using EDID board :

<Jumper setting :>

J6 : 1,2 short

J8 : 1,2 short

J10 : short



3. How to use Download Tool :

Software Installation, Un-installation :

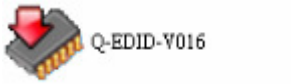
- Unzip the “Q-EDID” program files in the same directory.
- Install Q-EDID tool : Execute “Install Q-EDID.BAT” to install & register EDID Board into the computer.

- Un-install Q-EDID tool : If you want to uninstall this tool, execute “Uninstall Q-EDID.BAT”, then it will remove EDID Board from the computer.

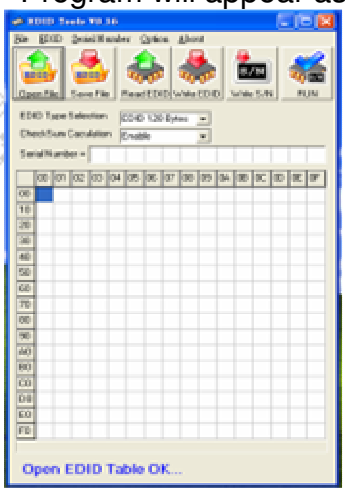
How to use Download Tool :

(1) Execute EDID Tools V0.16:

1. Run “Q-EDID-V016.exe”.



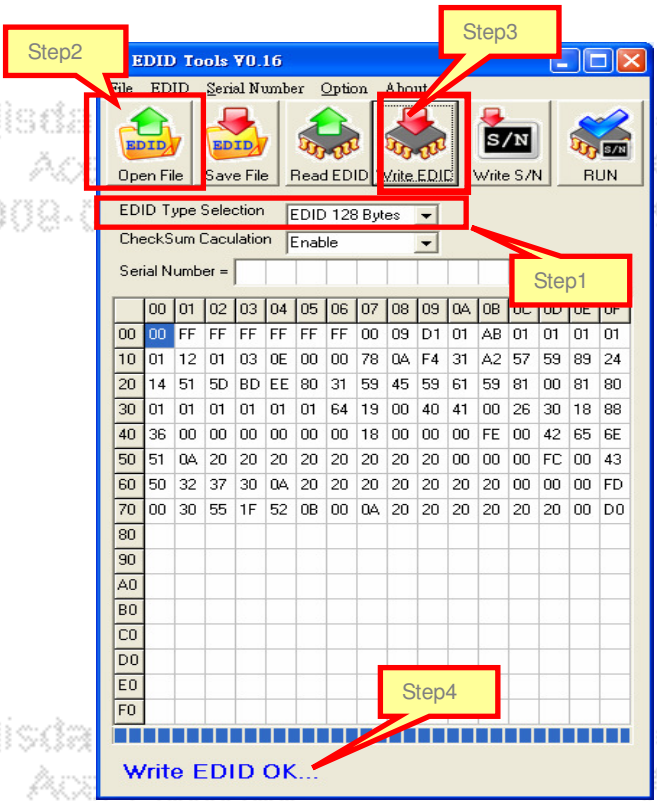
2. Program will appear as below picture.



(2) Write EDID:

- **When write D-SUB/DVI EDID:**

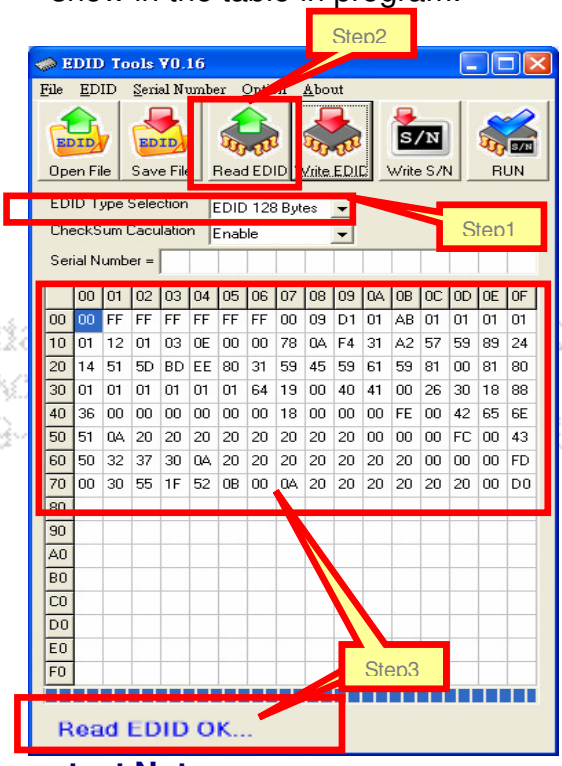
1. EDID Type Selection : Choose “EDID 128 Bytes”.
2. Open Files : Click “Open File” to select file “*.DDC”
   (Note : If your DDC file name is not like “*.DDC” (e.g. “*.2dc”), please rename it to “*.DDC”)
3. Write EDID : Click “Write EDID”, and it will execute writing process.
4. While complete, it will show message as ”Write EDID OK…”.
   (Note : Check cable connection before write. It will show Write EDID OK even the connection is not stable.)



(3) Read EDID:

- **Read D-SUB/DVI EDID:**

1. EDID Type Selection : Choose “EDID 128 Bytes”
2. Read EDID : Click “Read EDID”.
3. While complete, it will show message” Read EDID OK… ‘’, and the read-out DDC will show in the table in program.



Important Note :

- Be reminded to connect Only One port every time, because the software will not be able to identify the command signal from which port.
- After connecting all equipment, always read DDC before writing DDC to ensure the connection status is OK for writing DDC.

Serial Number Upgrade SOP

Hardware required

1. Standard RS232 Download cable
2. Personal computer or laptop computer

Software required

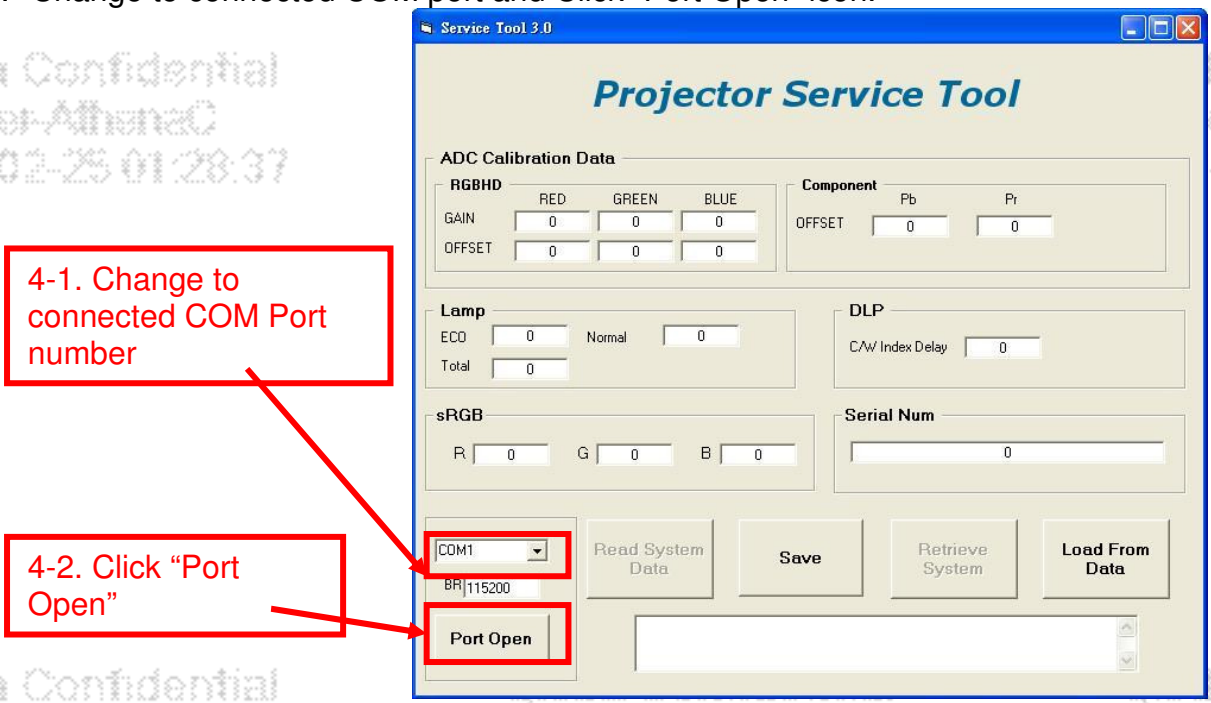
1. Acer_Service_Tool(Data)_3.1.exe

When need to use this Serial Number Upgrade program:

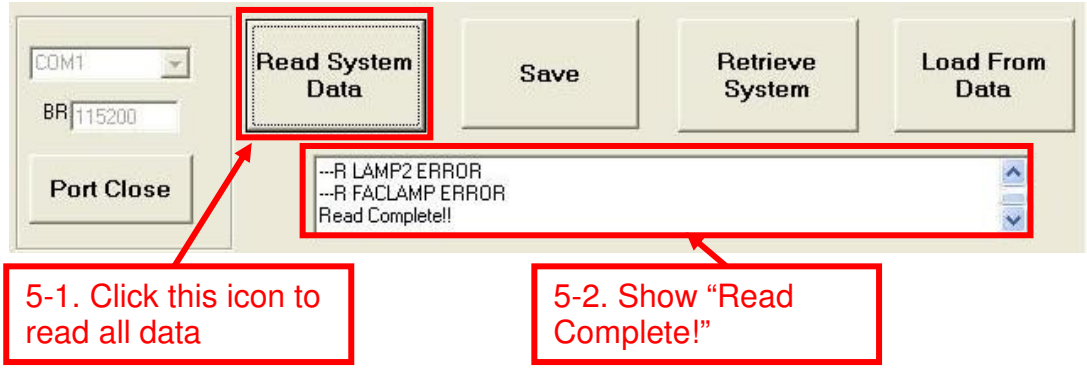
When it's time to replace Main board for repair, it's necessary to rewrite original S/N and some adjustment values into new Main board by the following process.

Upgrade procedure

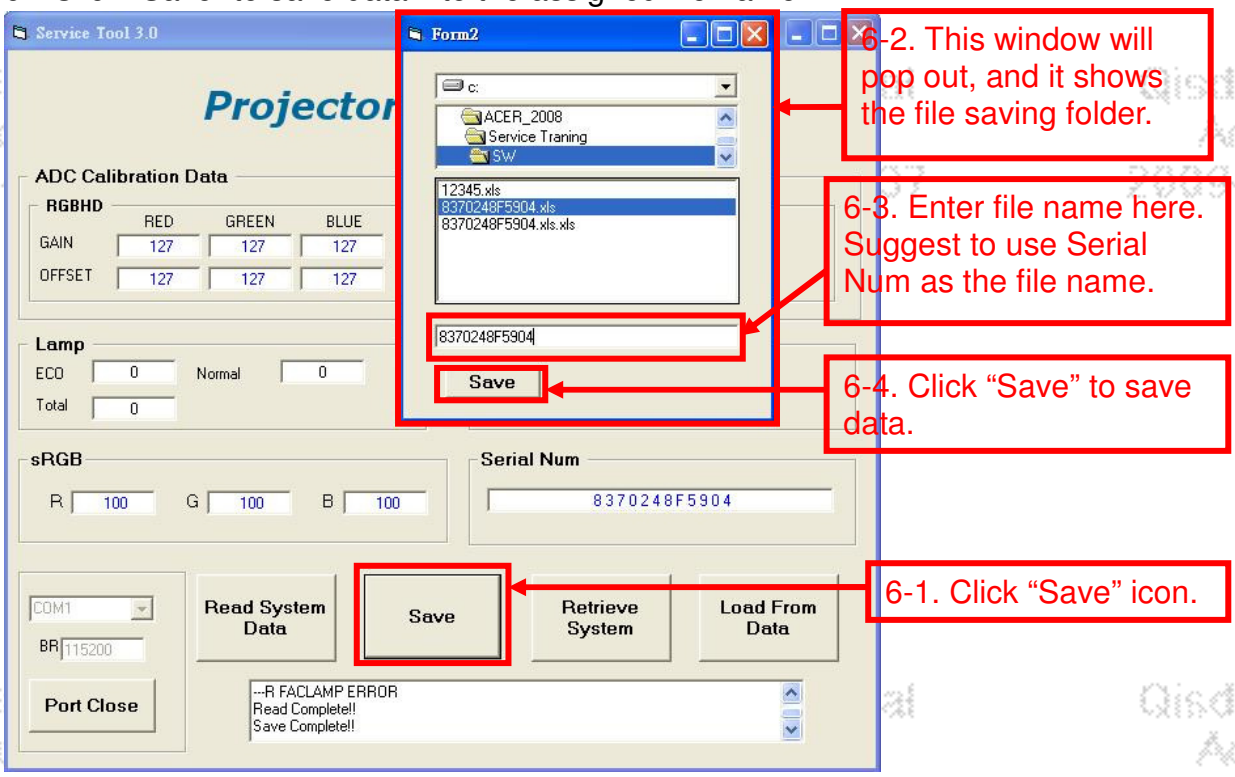
1. Prepare the download equipment: RS232 cable connect to PC and projector
2. Plug power cord into projector, and the projector will be in stand by mode.
3. Execute "Acer_Service_Tool(Data)_3.1.exe", and it will appear as below picture.
4. Change to connected COM port and Click "Port Open" icon.



5. **Read data from original Main board:**
   Click "Read system Data", and it will read the Adjustment data (except Auto keystone data) & Serial Number from projector and show the "Read complete" message in information block.



6. Click “Save” to save data into the assigned file name.



7. Change new Main board:

(1) Unplug power cable and RS232 cable from projector, and change new Main board into Projector.

(2) After changing Main board, reconnect power cable and RS232 cable into Projector.

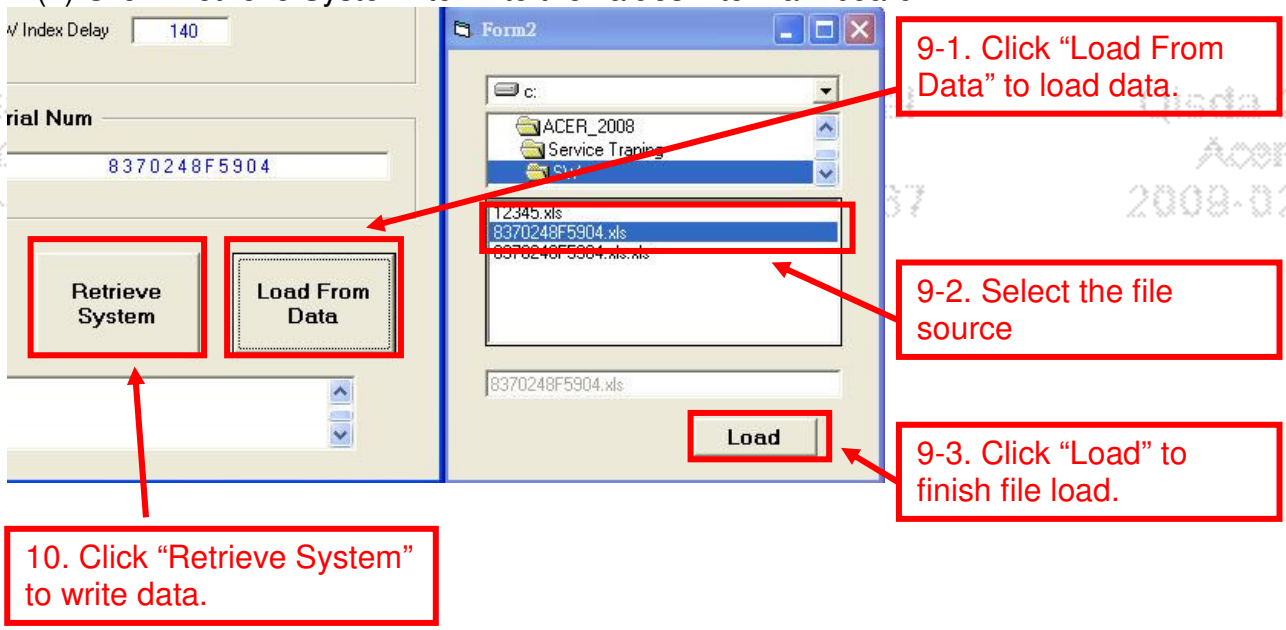
8. Write S/N & data into new Main board:

Press “Retrieve System” and write Data & SN to projector.

9. “Load from data” & “Retrieve System” :

(1) Click “Load from data” and select load file.

(2) Click “Retrieve System” to write the values into main board.

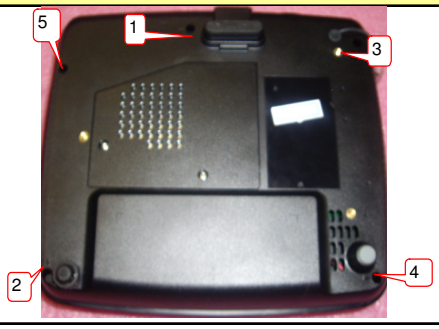
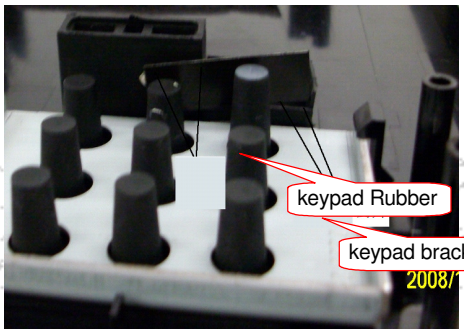
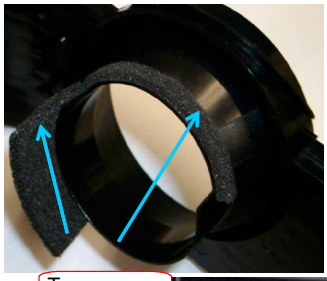
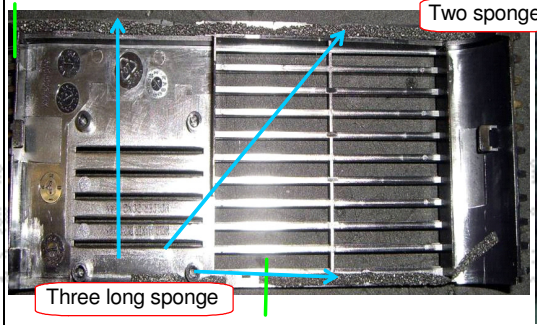
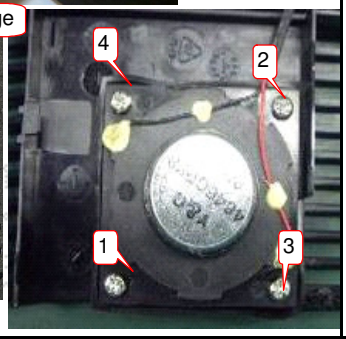
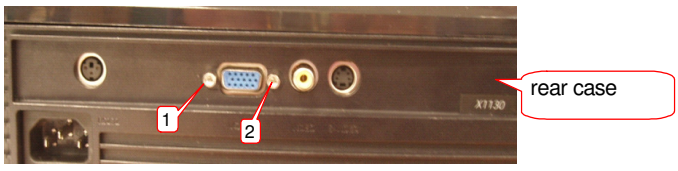
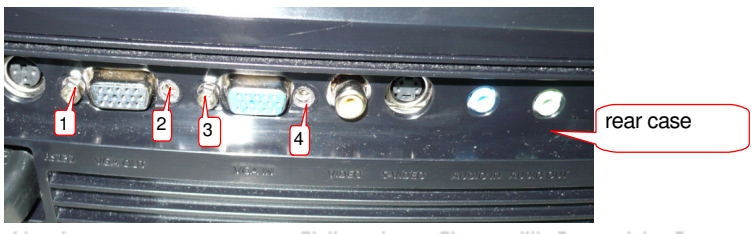


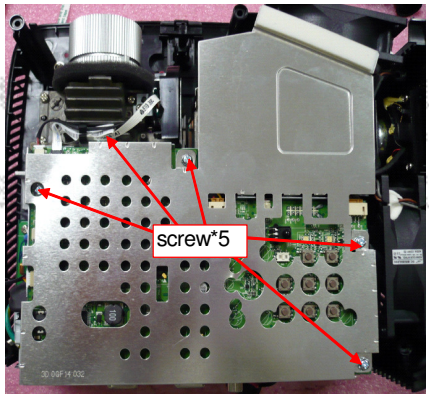
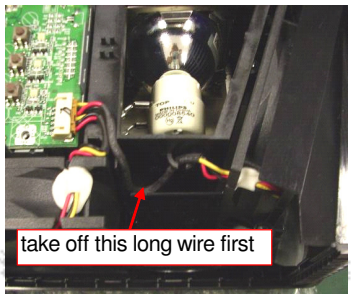
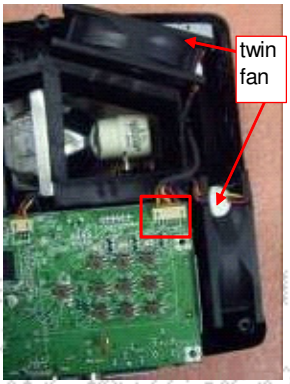
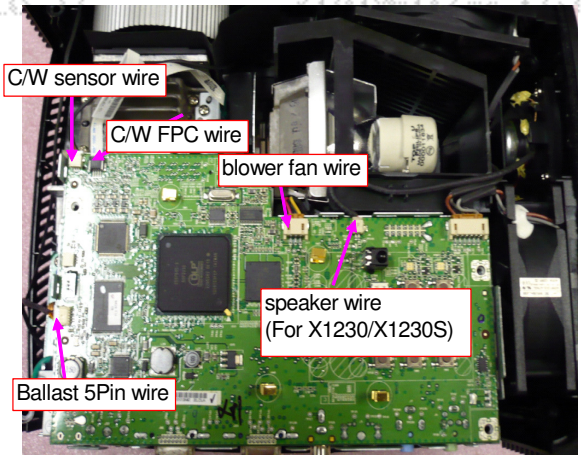
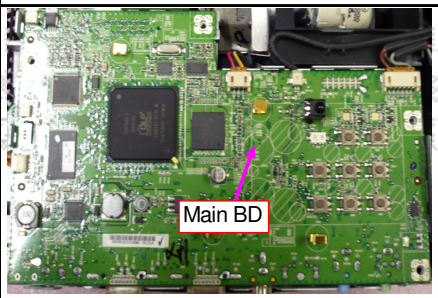
Chapter 3 System Disassembling and Replacement

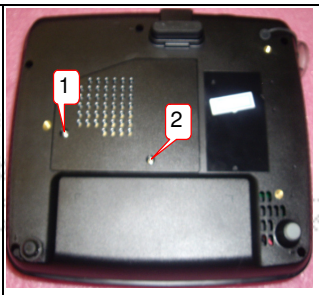
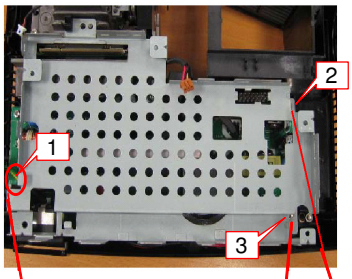
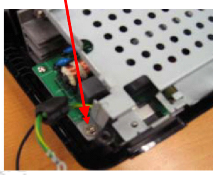
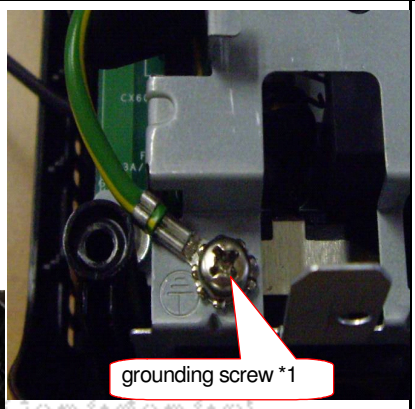
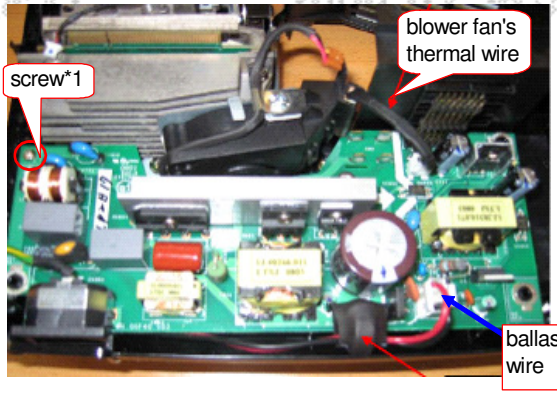
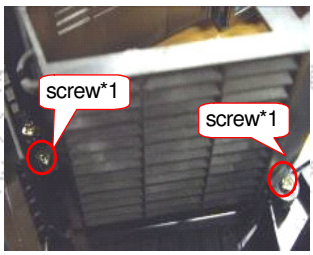
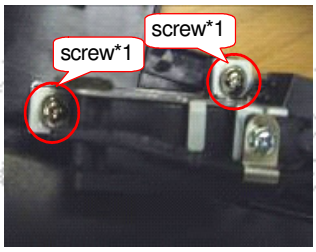
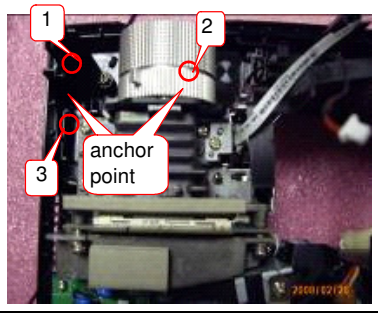
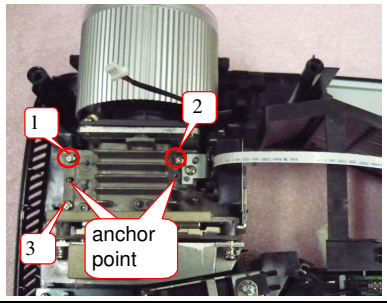
Main Unit Disassembling

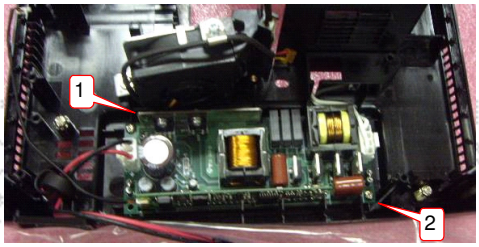
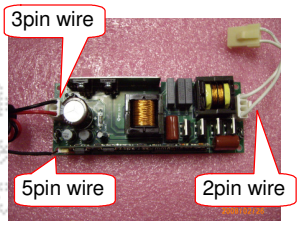
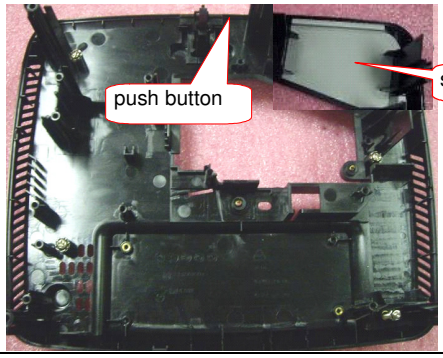
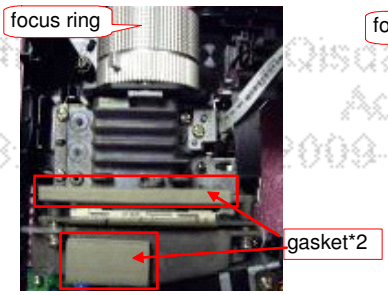
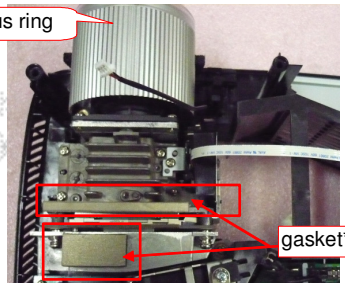
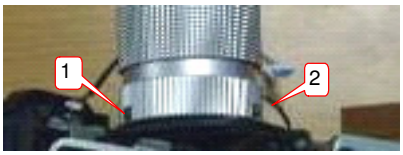
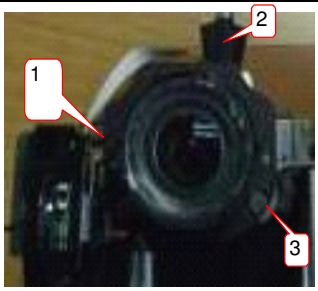
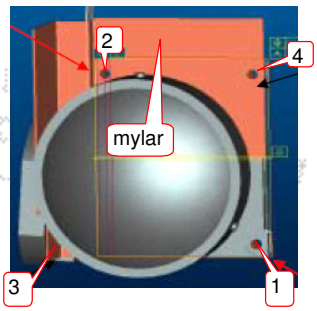
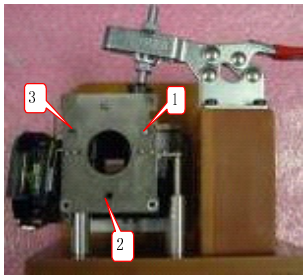
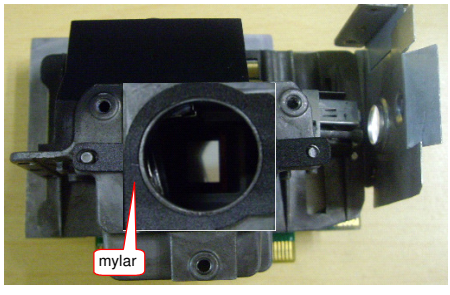
Tool : Screw Driver --Hex (#4-40) and Cross(Mechanical : M3,M4, Opt.Engine :M2)

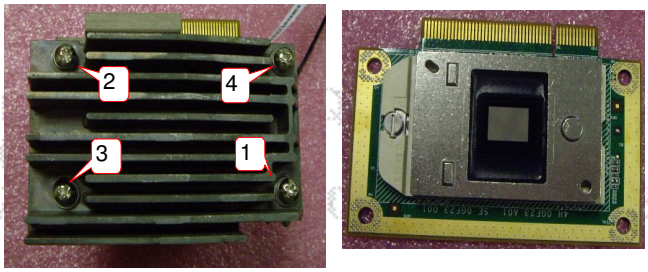
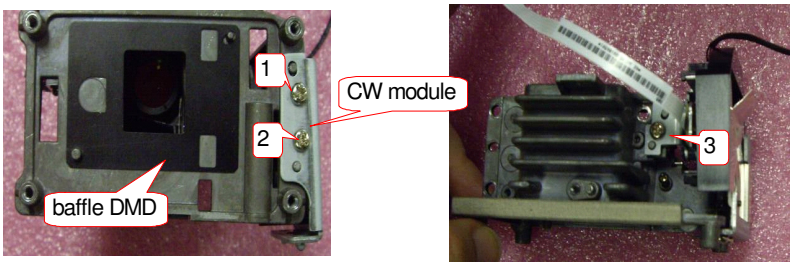
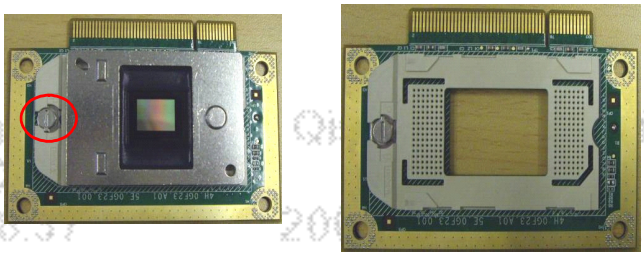
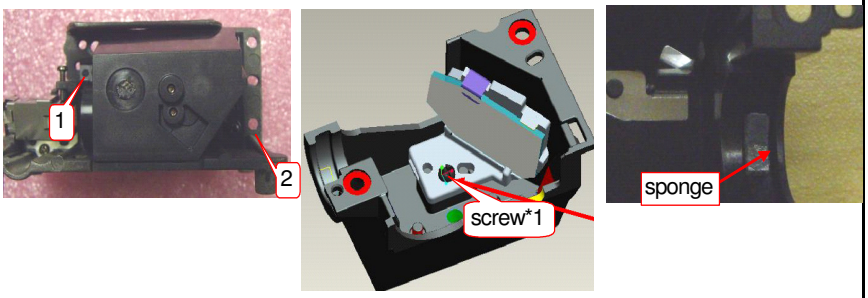
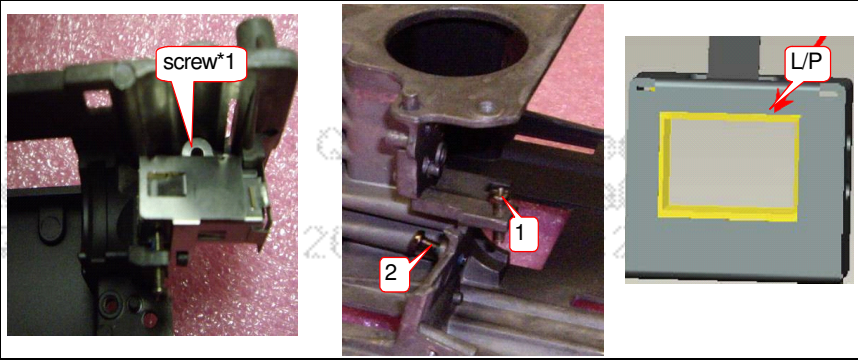
Process :

Step	Discription		Tool	Notice
1	Disassemble the screw*5(M3*7L).		screw driver	
2	(1) Take off the the IR sensor wire from mainboard, (2) Take off upper case module.			When taking off upper case module, be careful not to break the IR-M/B wire.
3	(1) Take off the case outlet case module (2) Take off the front case module (3) (For X1230/X1230S/X1230S/X1230K): Take off the screw*4 (M3*7L) and speaker from the outlet case module	   	screw driver	
4	<For X1130> : Disassemble the screw*2(STAND OFF XH4#-40), and take off the rear case. <For X1230/X1230S/X1235/X1230K> : Disassemble the screw*4(STAND OFF XH4#-40), and take off the rear case.	 	screw driver	

5	Disassemble the screw*5(M3*5L), and take off the M/B shielding.		screw driver	
6	(1)Take off the long wire (one of twin fan wire)from clip (2) Disassemble the twin fan. (3)Take off the twin fan wire from M/B.	 		
7	(1) Take off the C/W FPC wire, blower fan wire, C/W sensor wire, Ballast 5-Pin wire, speaker wire (For X1230/X1230S/ X1235/X1230K) from M/B. (2) Take off inlet case module.		screw driver	
8	Take off the M/B			

9	(1) Disassemble the screw*2(M3*6L), and take off the lamp door. (2) Disassemble the screw*1(M3*4L) and lamp wire, and take off the lamp module.	 	screw driver	
10	(1) Disassemble the screw*3(M3*8L). (2) Disassemble the grounding screw*1 (M4*6L), and take off the Power B/D SHD.	   	screw driver	
11	(1) Disassemble the wire*2 and screw*1(M3*7L), (2) Take off the power BD and ballast Mylar.	 	screw driver	
12	(1) Disassemble the screw*2(M3*7L), and take off the lamp box. (2) Disassembly the screw*2(M3*8L), and take off the blower fan.	 	screw driver	
13	Disassemble the screw*3(M3*7L), and take off the OPT eng .	<For X1130/X1230/X1235/X1230K>  <For X1230S> 	screw driver	

14	Disassemble the screw*2(M3*5L), the ballast BD, and wire*3.	 	screw driver	
15	Take off the shielding and push button.		screw driver	
16	(1)Take off the gasket*2. (2)Disassemble the Focus Ring.	<For X1130/X1230/X1235/X1230K>  <For X1230S> 	screw driver	
17	<For X1130/X1230/ X1235/X1230K>: (1)Take off Zoom Ring and Ring screw*2(M2*3L). (2)Take off the LENS screw*3(M3*4L) and the Projection Lens. <For X1230S>: (1)Take off Focus Ring. (2)Take off the LENS screw*4(M3*6L) and Mylar	<For X1130/X1230/X1235/X1230K>   <For X1230S>  	screw driver	
18	<For X1230S>: (1)Disassemble the screw*3(M3*4L), and take off the frame lens (2)Take off the mylar	 		

19	Disassemble the screw*4(M3*15.15L), and take off the HSINK and DMD chip BD with DMD Chip.		screw driver	
20	(1)Disassemble the baffle DMD. (2)Disassemble the screw*3(M3*4L) and take off the CW module.		screw driver	
21	Rotate to open the switch on socket, and take off the DMD chip.		screw driver	
22	(1)Disassemble ILL module screw*2(M2.5*5L). (2)Take off screw*1(M2*8L), FM holder, fold mirror, FM clip*2, clip CM front, clip CM side and sponge.		screw driver	
23	(1)Disassembly the Light Pipe clip screw*1 (M2*3L). (2)Take off the LP module and LP screw*2(M2*8L).		screw driver	

Module Assembly Key Point - Optical Engine

1. Light Pipe Module assembly and overfill alignment

1.1 Assembly LP Module to HSG DMD

(3) Assembly two Overfill adjustment screws to HSG DMD (Fig. 1-1).
** Adjustment criteria refer to below item

(4) Assembly “Clip LP” and lock with screw well (Fig. 1-2).

(5) Press CLIP of RE_BKT_LP first, and then push it into the hole (Fig. 1-3).

(6) Placed LP Module on LP datum of “DMD HSG” and adjustment screw well (Fig.1-4).

(7) Assembly “Baffle LP” first (Fig. 1-5-1) & push “Baffle LP” to hook DMD HSG, and then lock with screw well (Fig. 1-5-2).

1.2 Overfill Adjustment @ LP Module

Overfill Adjustment Criteria:

(1) Pre-assembly 2 adjusting screws. Criteria shown as Fig.1-6.

(2) Alignment Sequence:

a. To adjust “Horizontal Adjustment Screw” firstly, and then “Vertical Adjustment Screw”.

b. Refer to Fig. 1-6.

(3) For Overfill Re-adjustment:

a. Those 2 Adjustment Screws must be released closely to the “Pre-assembly” positions first.

b. Follow adjustment steps shown in Item 4.6-ii.

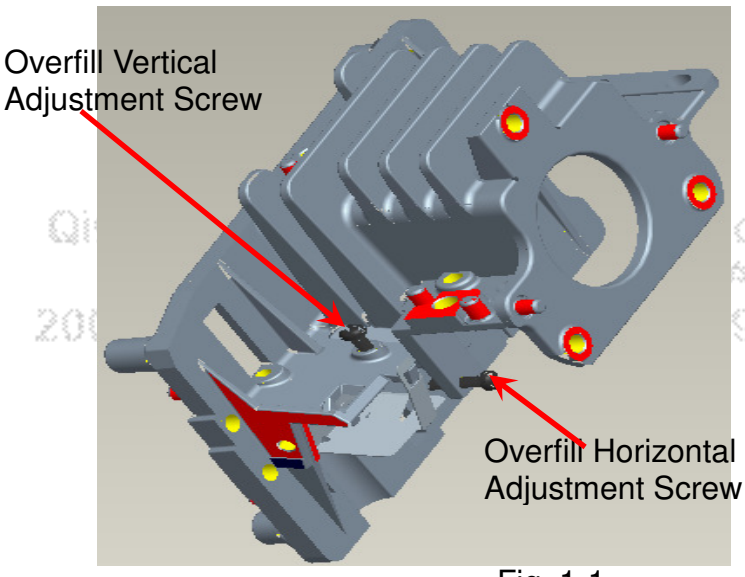


Fig. 1-1

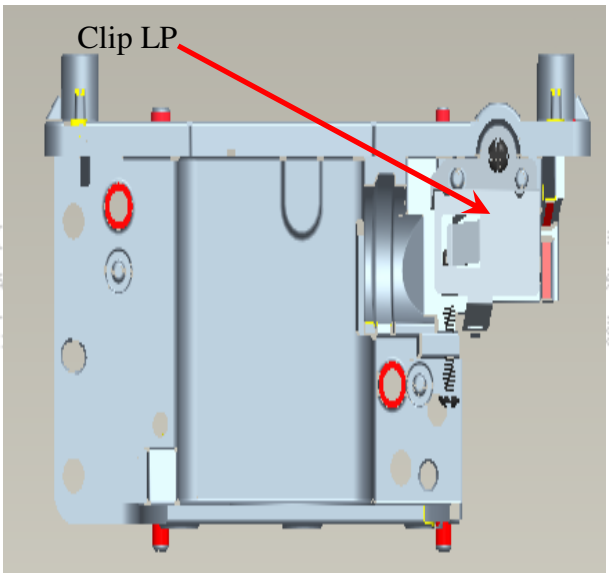


Fig. 1-2

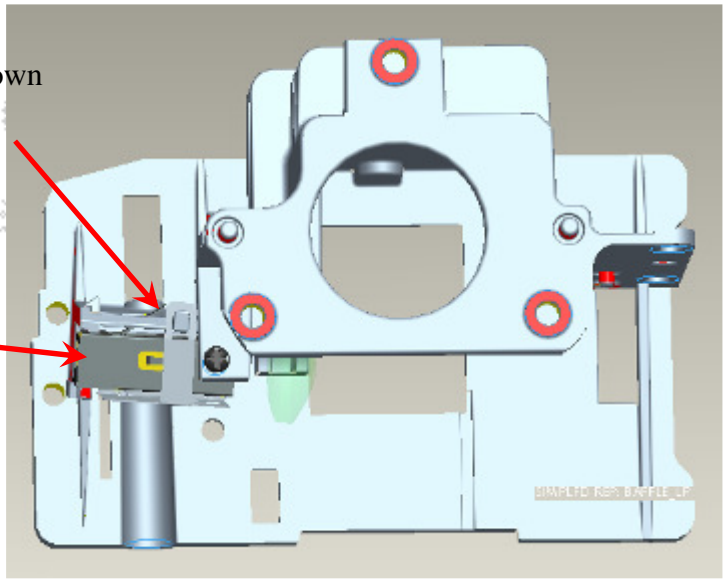


Fig. 1-3

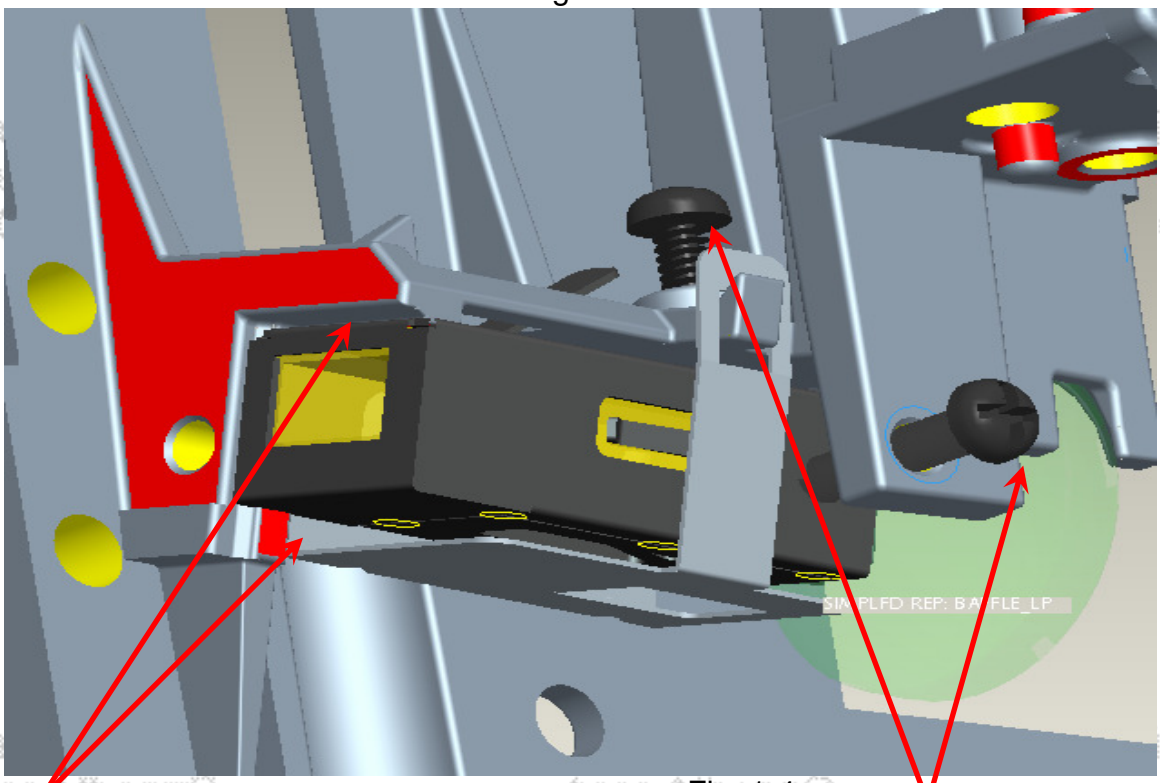


Fig. 1-4

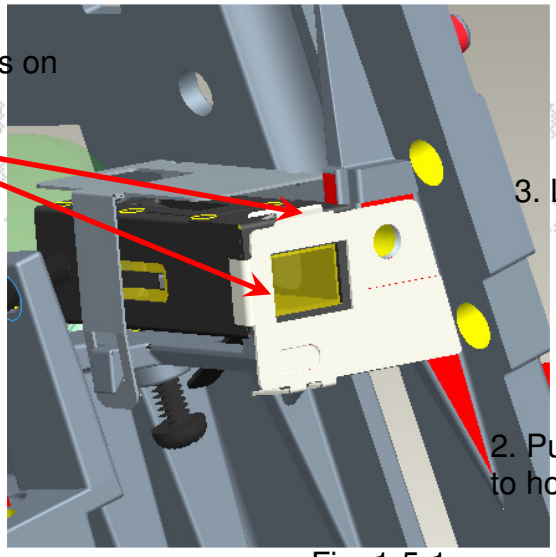


Fig. 1-5-1

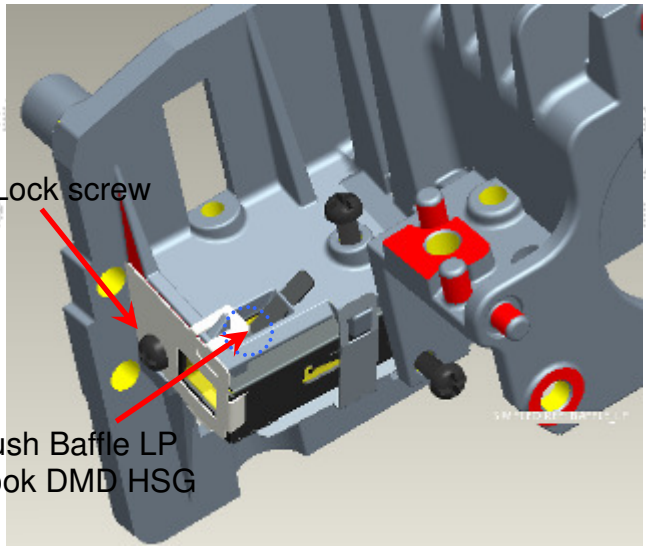


Fig. 1-5-2

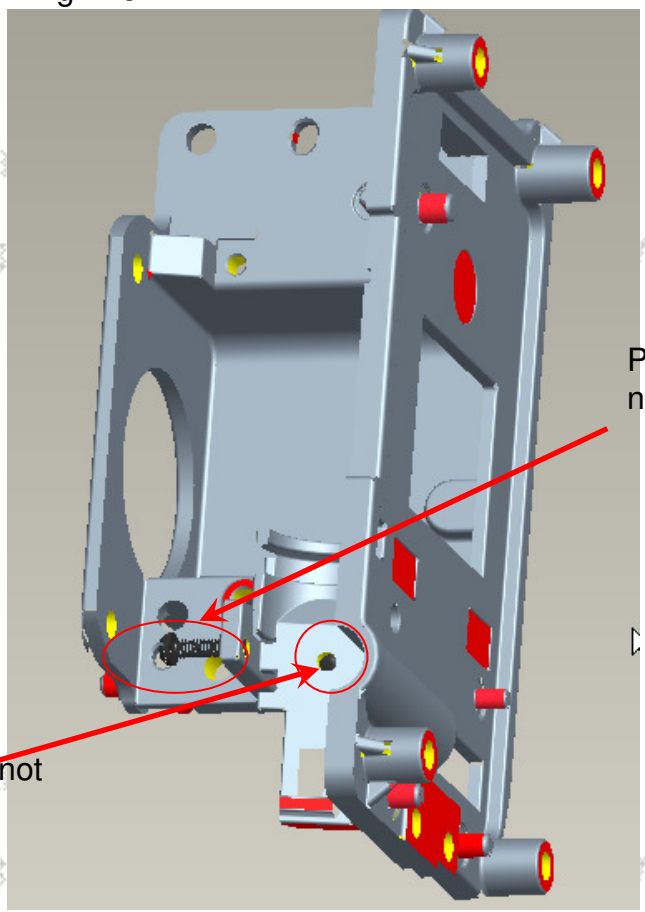


Fig. 1-6

2. Assembly FM Module:

Place FM on “HLD FM” surface(Fig. 2-1) and use “Clip FM” to fix FM(Fig. 2-2).

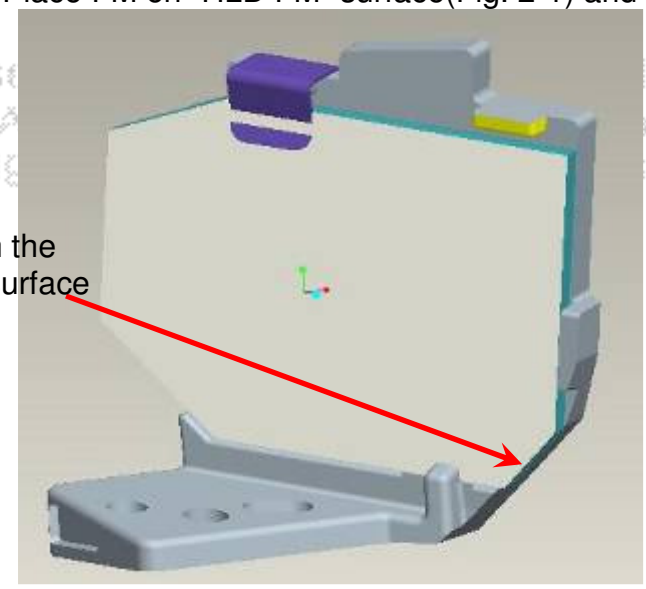


Fig. 2-1

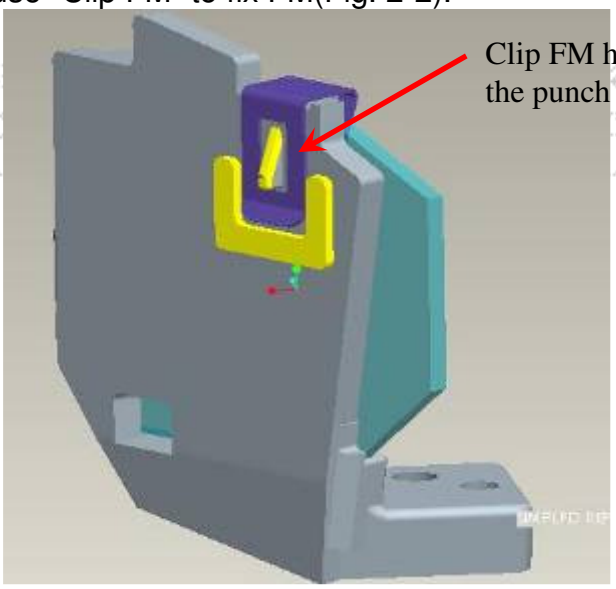


Fig. 2-2

3. Assembly HSG ILL Module:

3.1 CM Assembly

I. Insert “Clip CM Side” first, and then place “Clip Front CM” to fixed-shaft of ILL SUB before locking screw (Fig. 3-1, Fig. 3-2).

II. Assemble CM to HSG ILL and to make CM contact three datum on the HSG ILL Well (Fig. 3-3).

III. Assemble “CLIP TOP CM” (with forceps) to the “HSG IL” (Fig. 3-4,).

IV. To check and make sure “CLIP of CM” hooks the HSG ILL very Well (Fig. 3-5).

V. Paste “Sponge tube AL” on cannelure of” HSG ILL” (Fig. 3-6).

6.2 FM Module Assembly

1. FM Module must be placed to fixed shaft and on the datum surface of “ILL SUB” and then lock with screw well (Fig. 3-7).

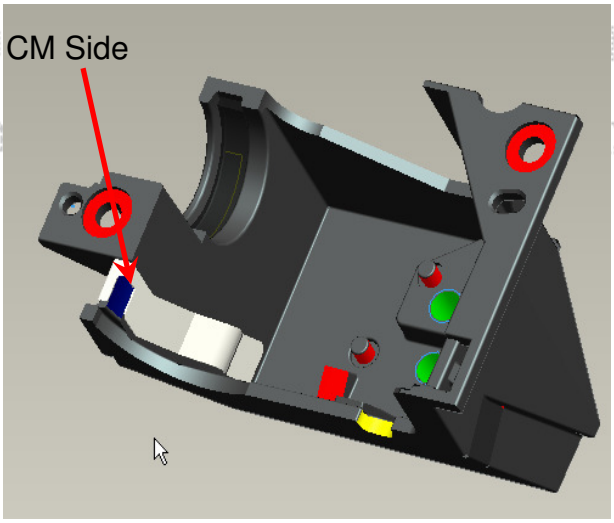


Fig. 3-1

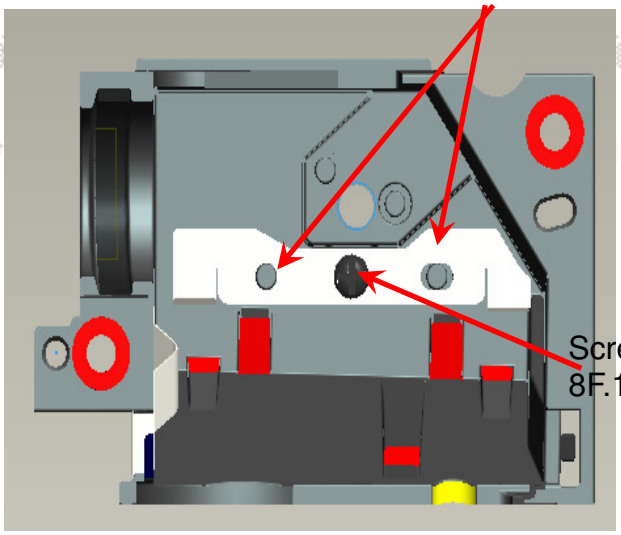


Fig. 3-2

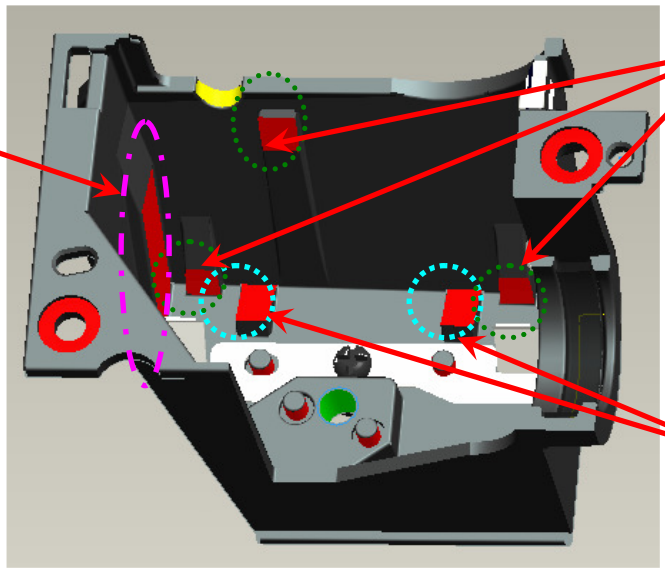


Fig. 3-3

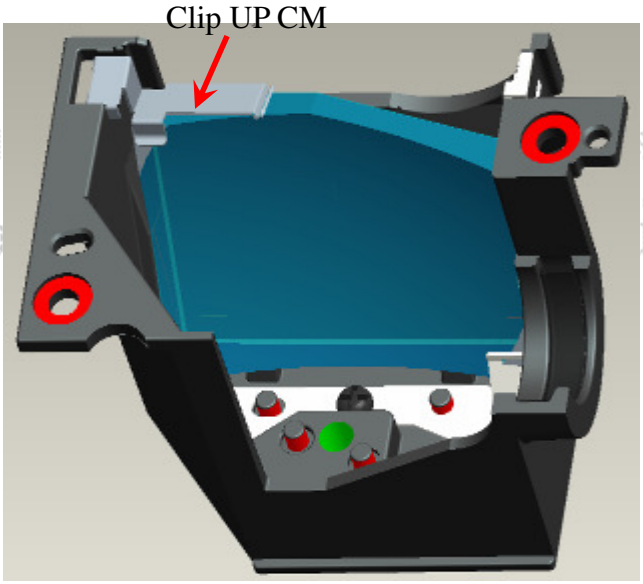


Fig. 3-4

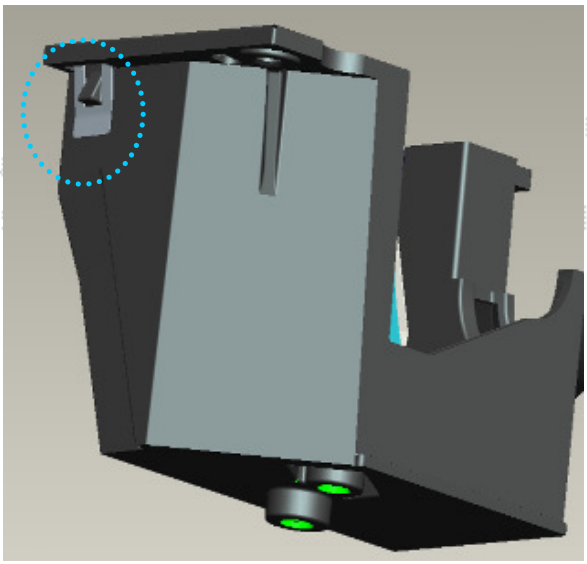


Fig. 3-5

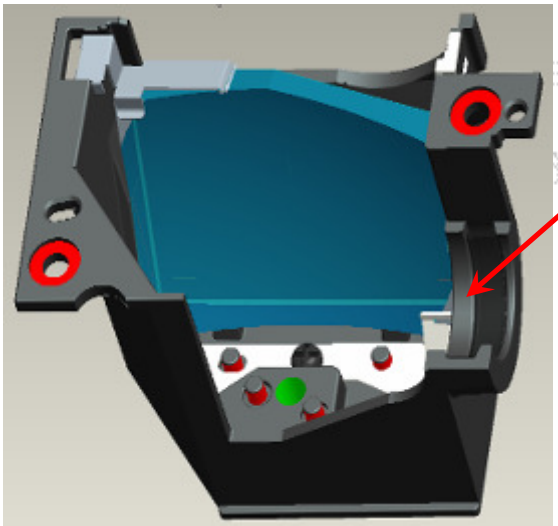


Fig. 3-6

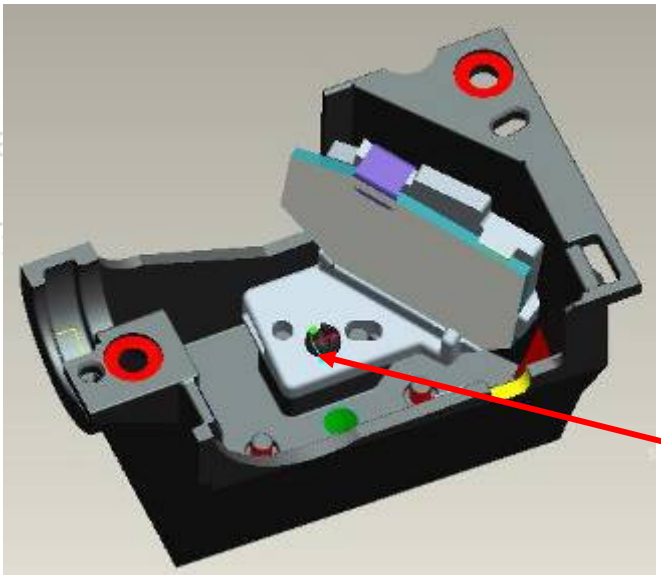
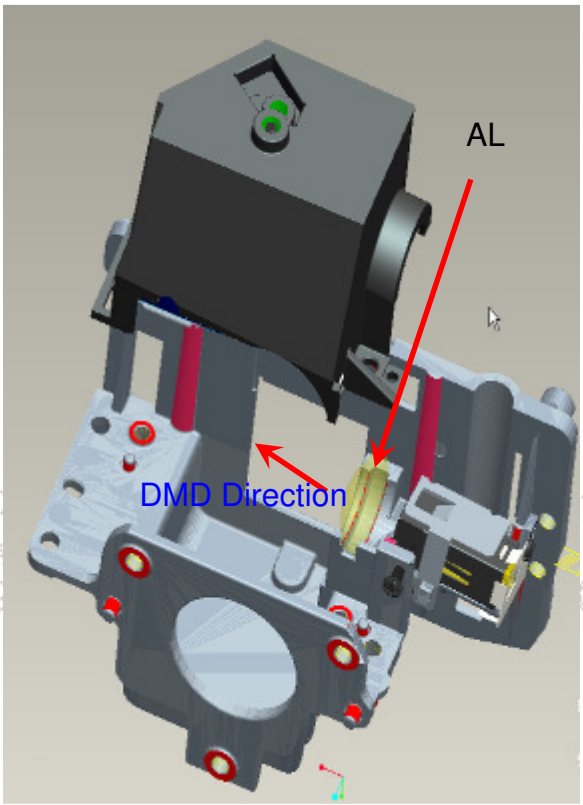


Fig. 3-7

4. AL, HSG ILL and HSG DMD Assembly:

4.1 Placed “AL” on the “HSG DMD”. The “raised surface” of “AL” shall toward “DMD direction” (Fig. 4-1).

4.2 To assemble ”HSG ILL SUB Module” with “HSG DMD” and cover over on “AL” and the then lock with screws (Fig. 4-2).



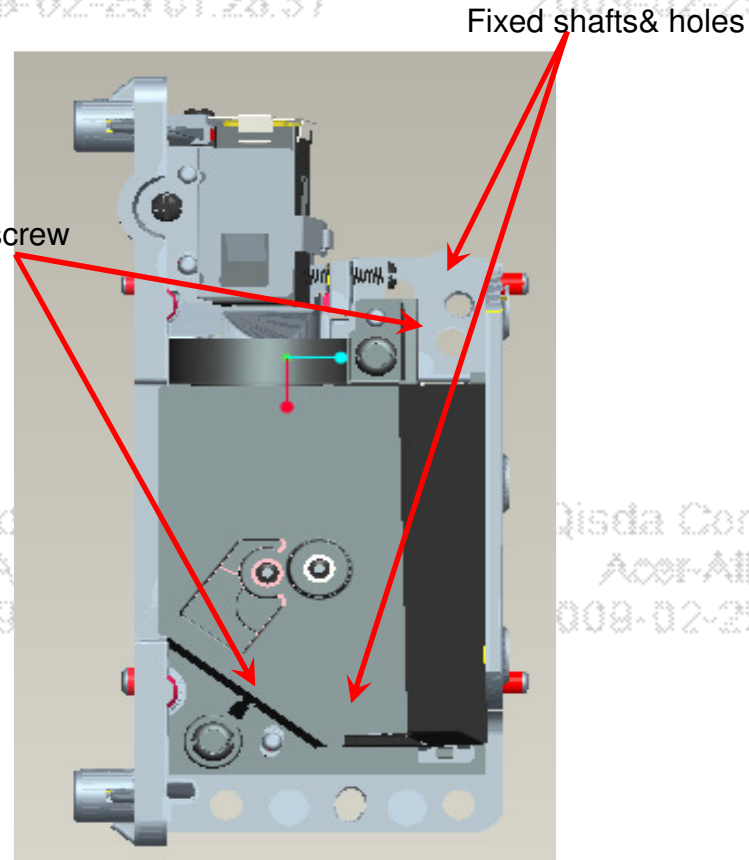


Fig. 4-1

Fig. 4-2

5. DMD and Chip B/D Module:

5.1. Judge Chip B/D and DMD alignment keying first (Fig. 5-1, 5-2).

5.2. Alight keying and Assemble DMD to Chip B/D (Fig. 5-3).

5.3. Push DMD slightly and use screwdriver rotate clockwise button to lock (close notation) DMD on Chip B/D (Fig. 5-4).

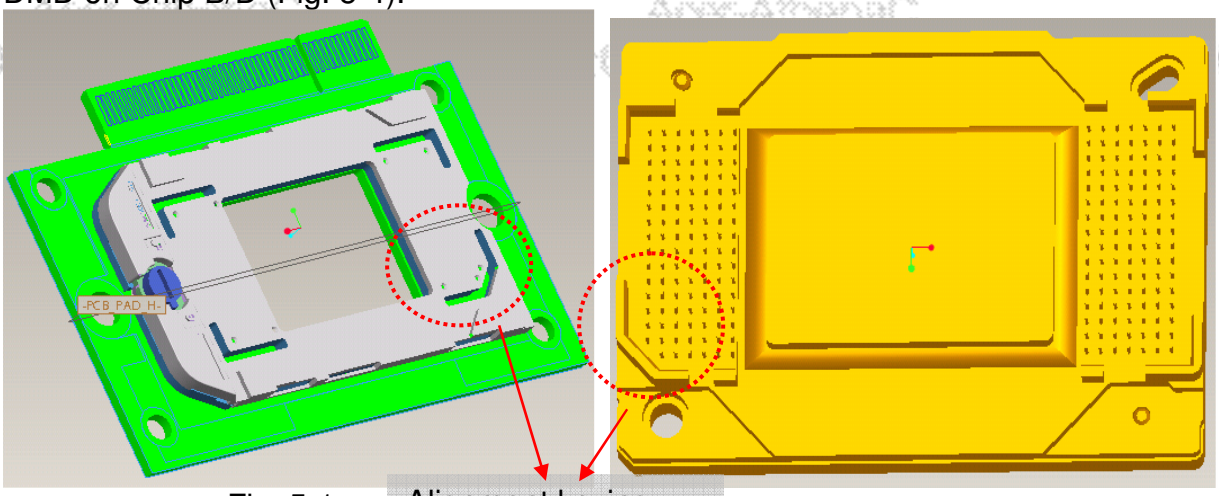


Fig. 5-1

Fig. 5-2

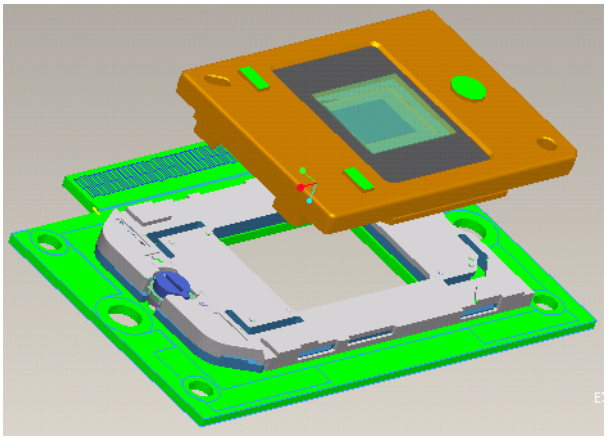


Fig. 5-3

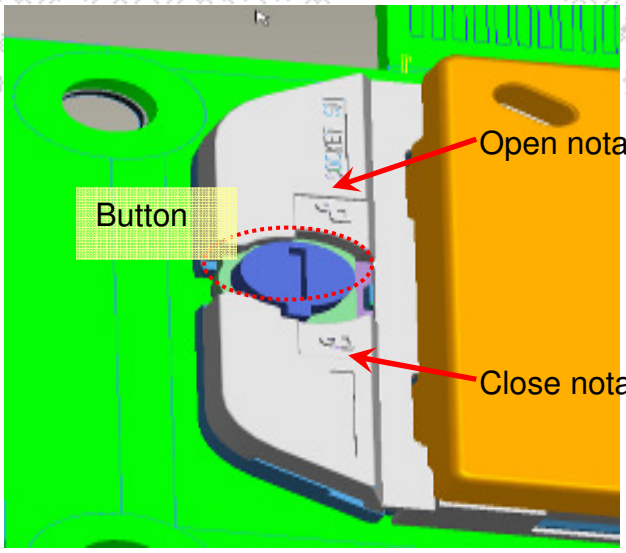


Fig. 5-4

8.4 Place Damper on the surface of Chip-BD Fig. 5-5.

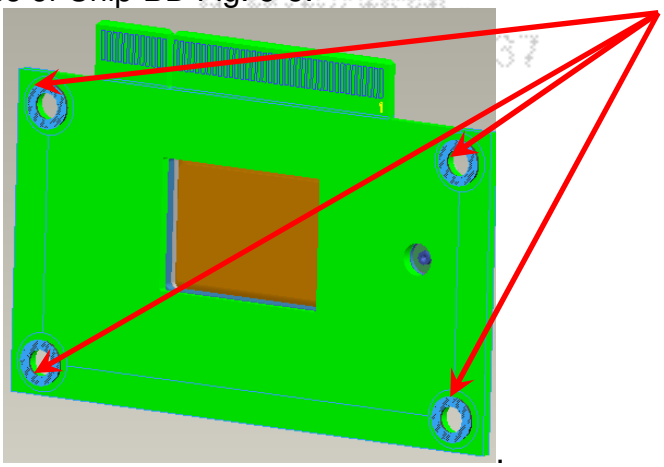


Fig. 5-5

6. Assembly Optical Engine:

6.1 Assemble “BKT Link Lamp & CW shield” on “DMD HSG” and then lock with screws well

(Fig. 6-1).

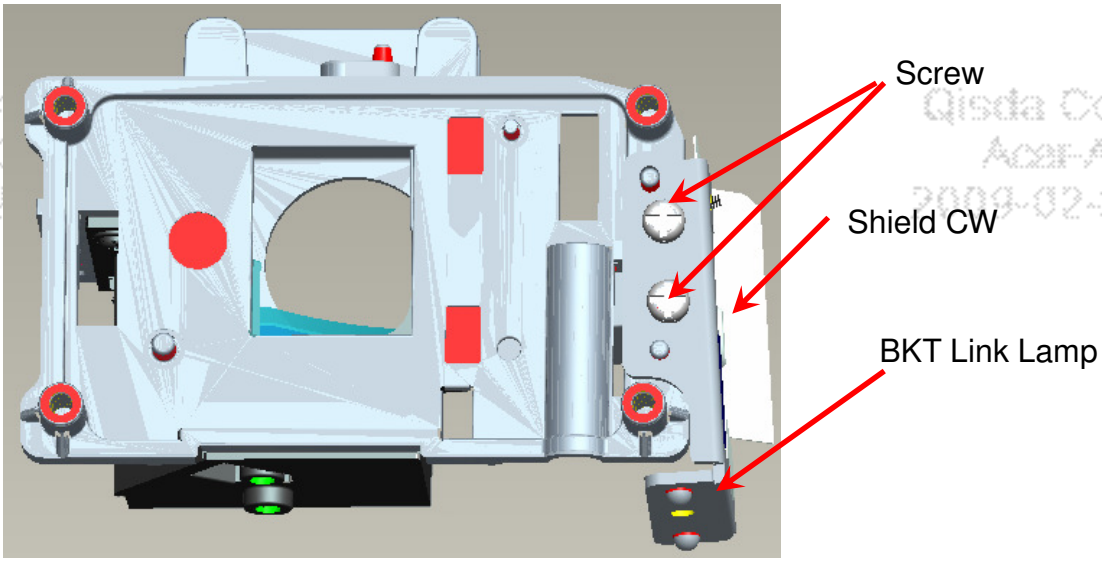


Fig. 6-1

7. Assembly OP ENG

7.1 Assemble “Baffle DMD” to “HSG DMD” (Fig.7-1).

7.2 Assemble Chip B/D Module to “HSG DMD” (Fig. 7-2).

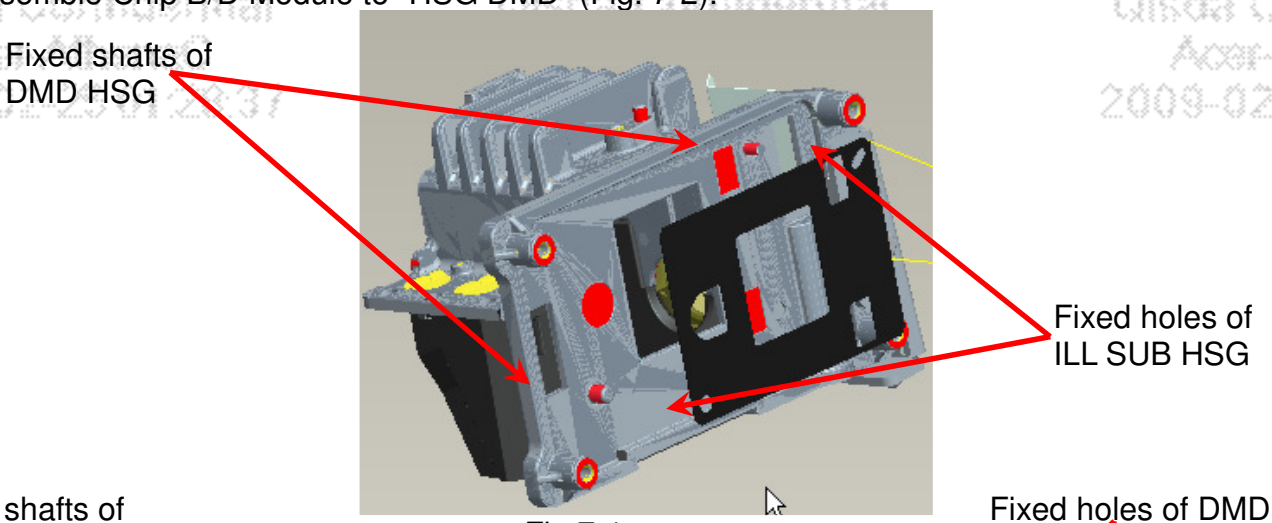


Fig.7-1

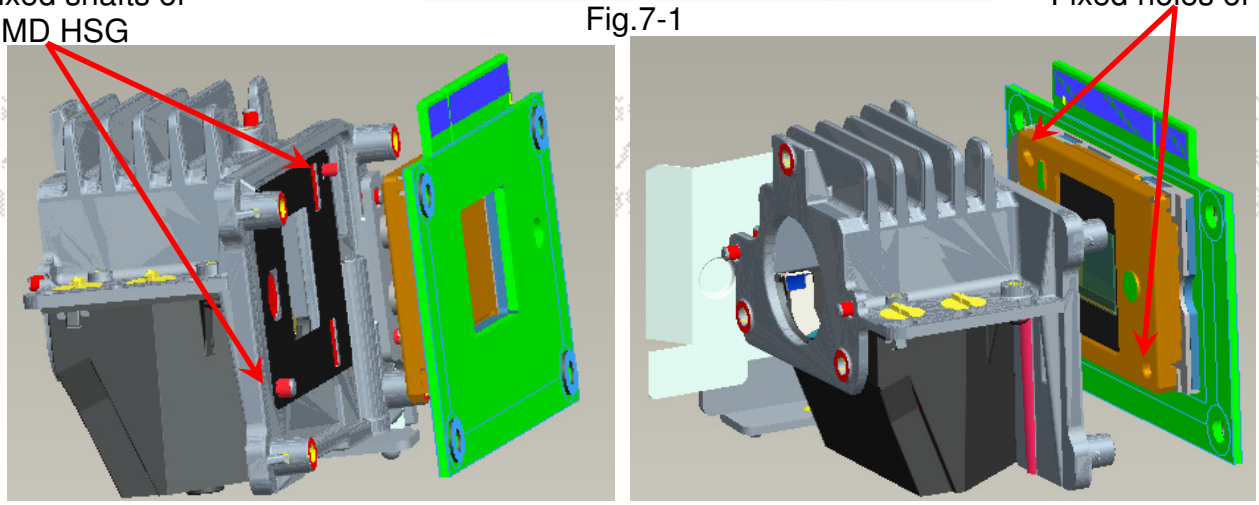


Fig.7-2

7.3 Assemble Thermal Pad & Gasket Hest-sink then place contact DMD (Fig. 7-3).

(1) Pre-fastening Sequence: [1] - [2] - [3] - [4].

(2) Fastening Sequence: [4] - [3] - [2] - [1].

(3) Screw Torque must be confirmed to be 6 kg-cm.

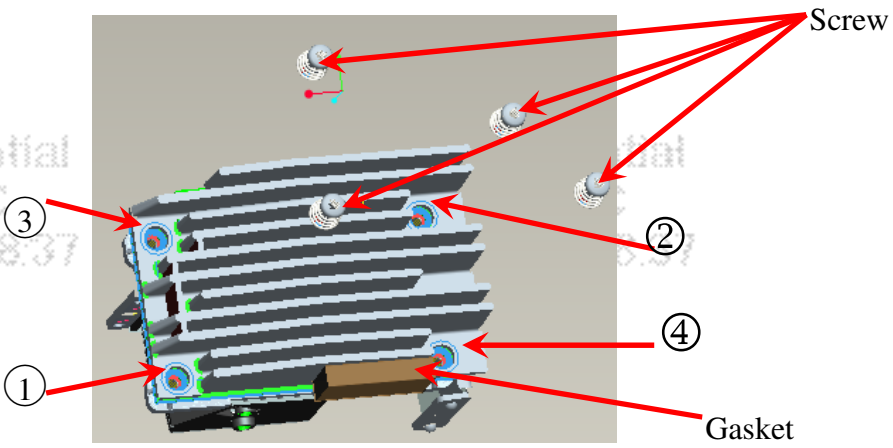


Fig. 7-3

7.4 Assemble “CW Module” to “DMD HSG” and lock with screws well (Fig.7-4).

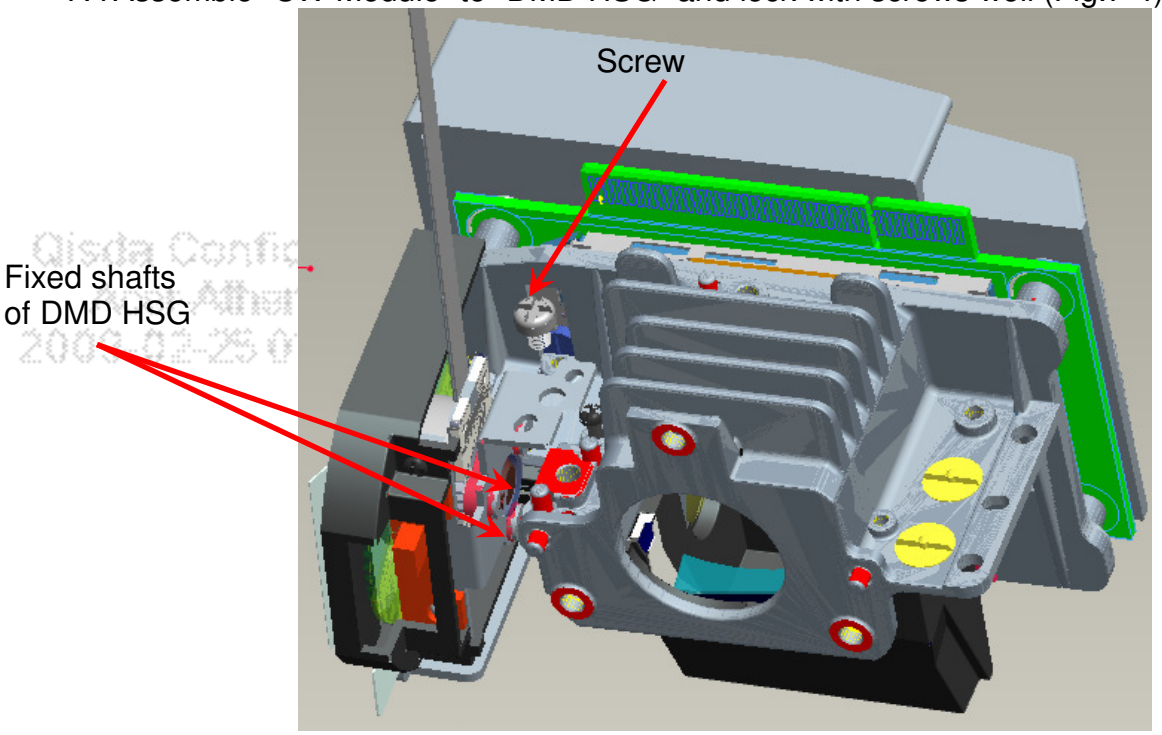


Fig.7-4

7.5 **For X1130/X1230/X1235/X1230K :**

Assemble “PL Lens” and lock with screws well (Fig. 7-5).

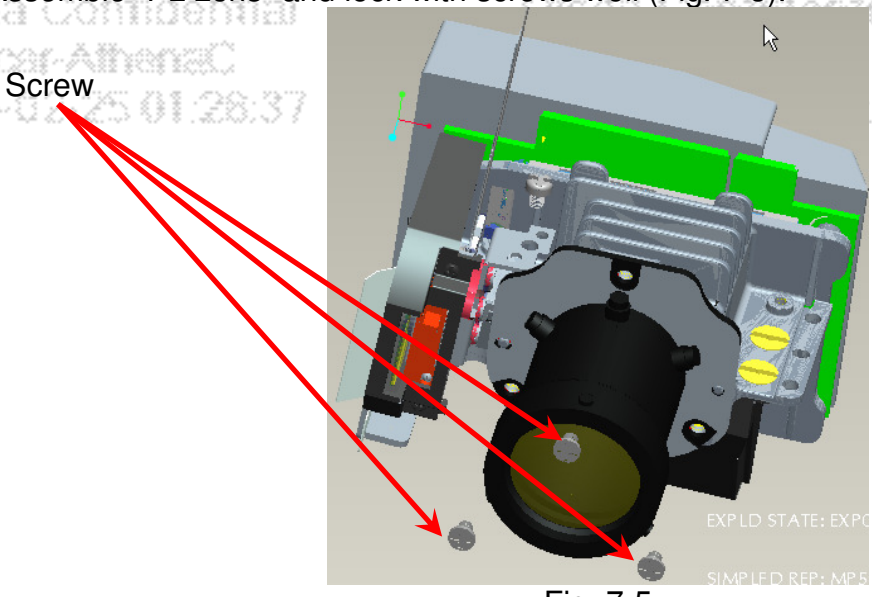


Fig. 7-5

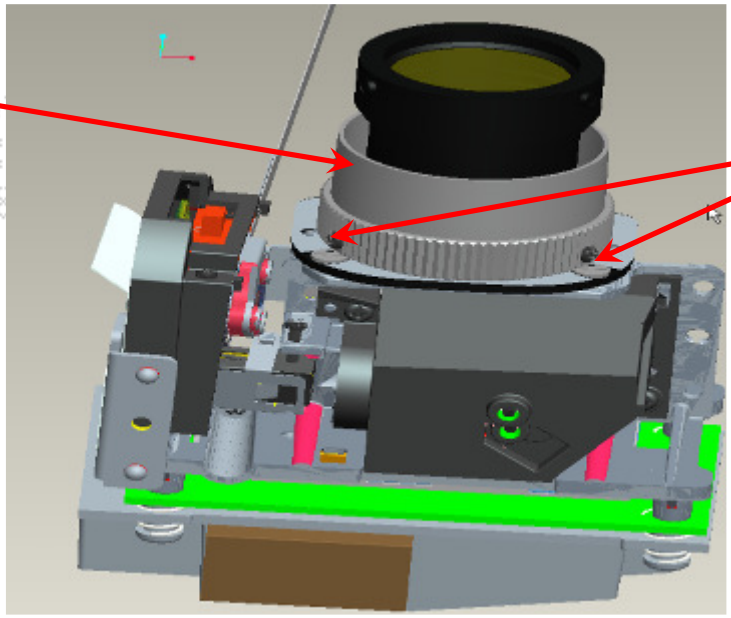


Fig. 7-6

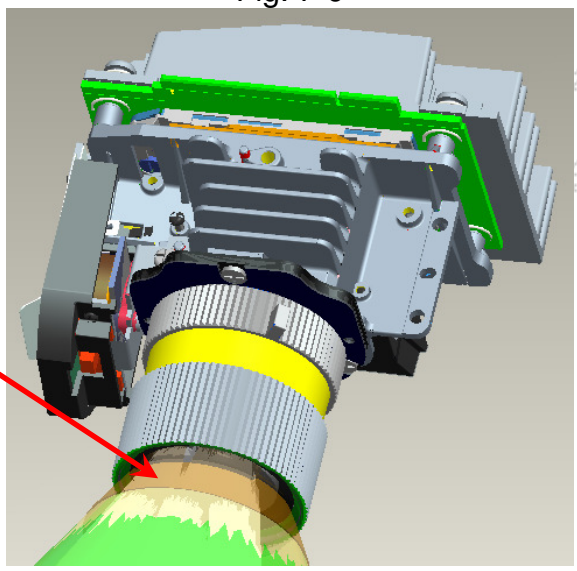


Fig. 7-7

7.6 **For X1130/X1230/X1235/X1230K :**

Assemble Lamp Module to “BKT Link Lamp” and then lock with screw well (Fig. 7-8, Fig. 7-9).

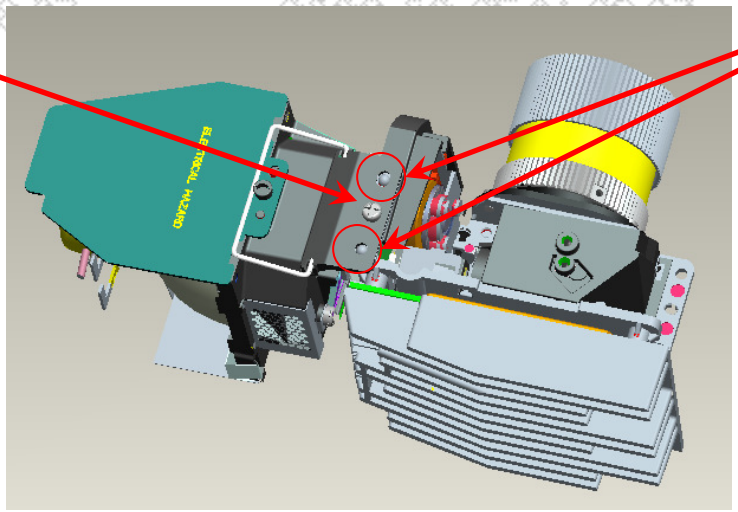


Fig. 7-8

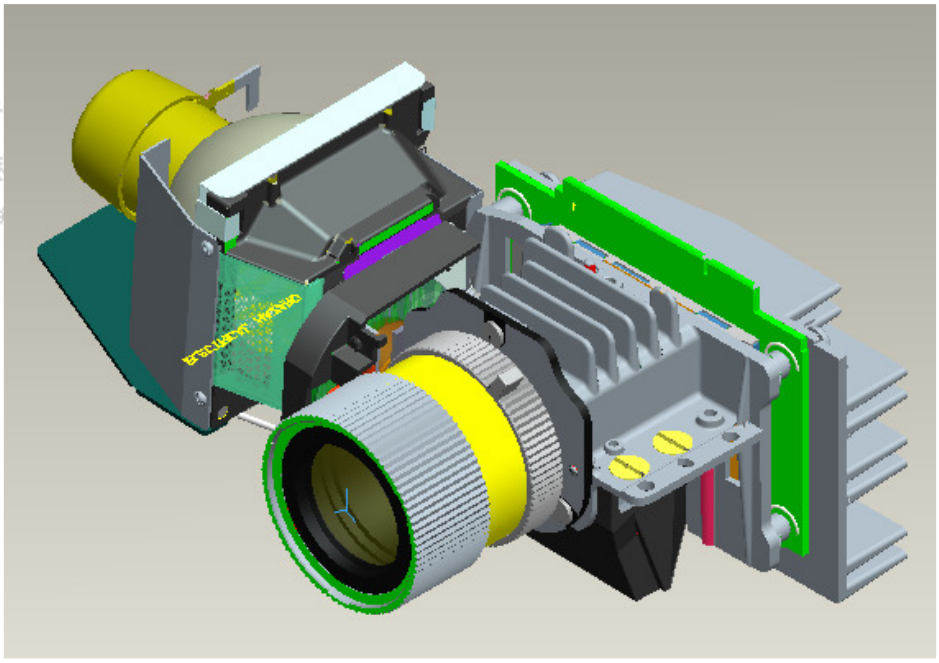


Fig. 7-9

7.7 **For X1230S** :

Assemble “Frame Lens Wide” and lock with screws well (Fig. 7-10).

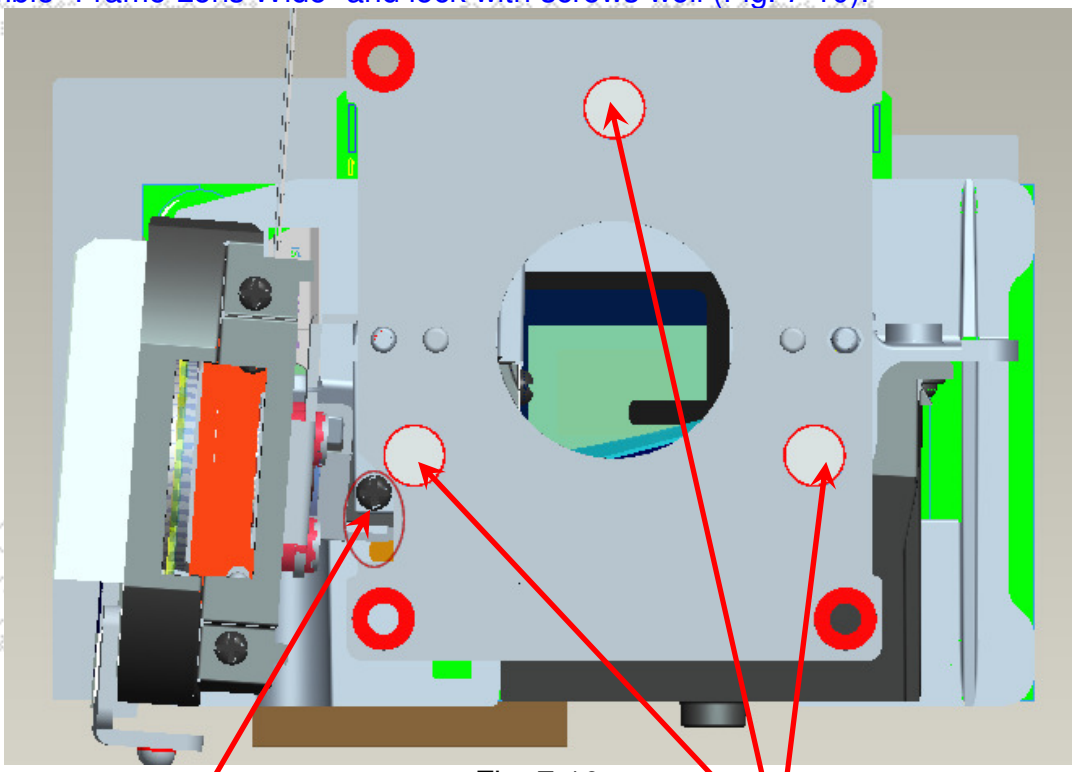


Fig. 7-10

7.8 **For X1230S** :

Assemble “PL Lens” and lock with screws well (Fig. 7-11).

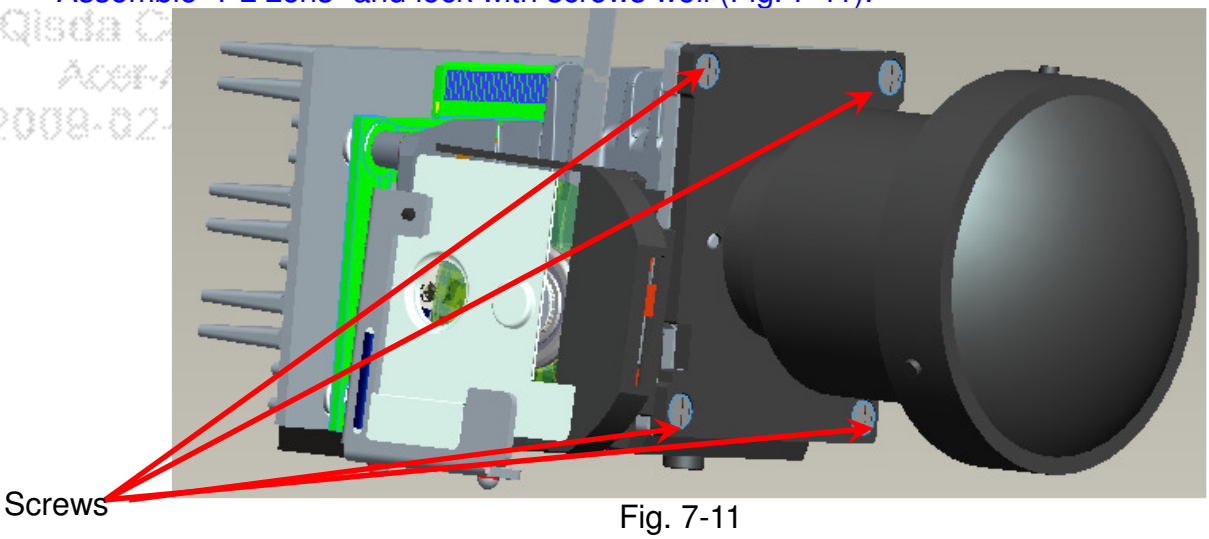


Fig. 7-11

7.9 **For X1230S** :

Assemble “Ring Focus” (Fig.7-12).

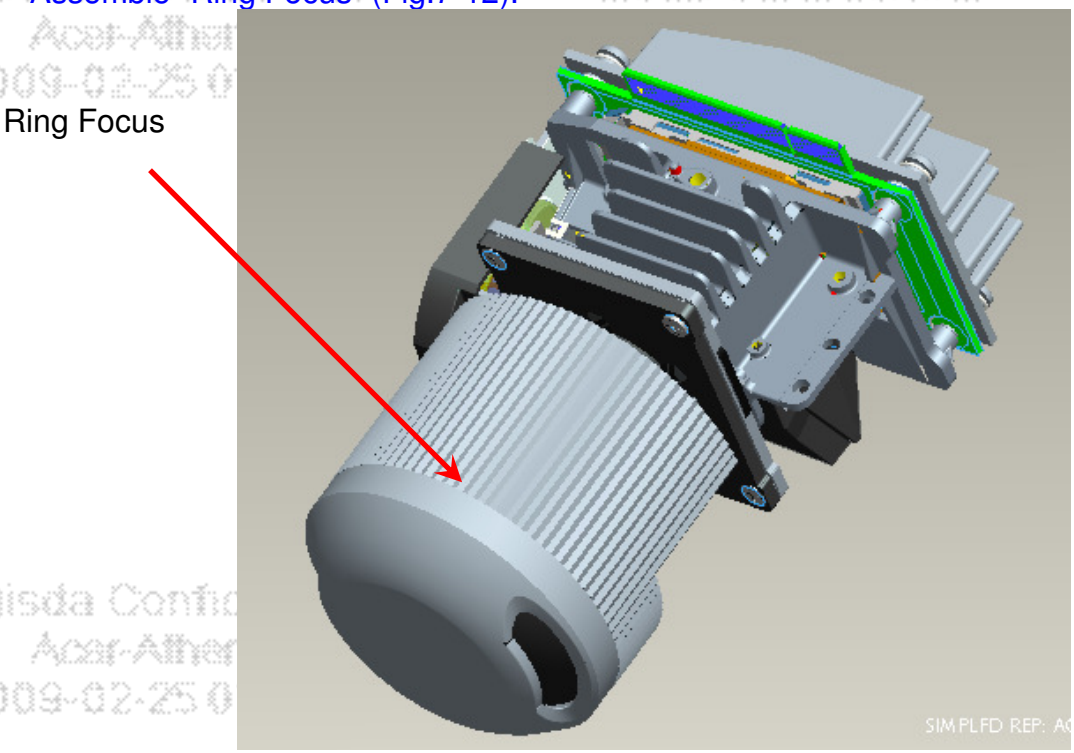


Fig. 7-12

7.10 **For X1230S** :

Assemble Lamp Module to “BKT Link Lamp” and then lock with screw well (Fig.7-13, Fig. 7-14).

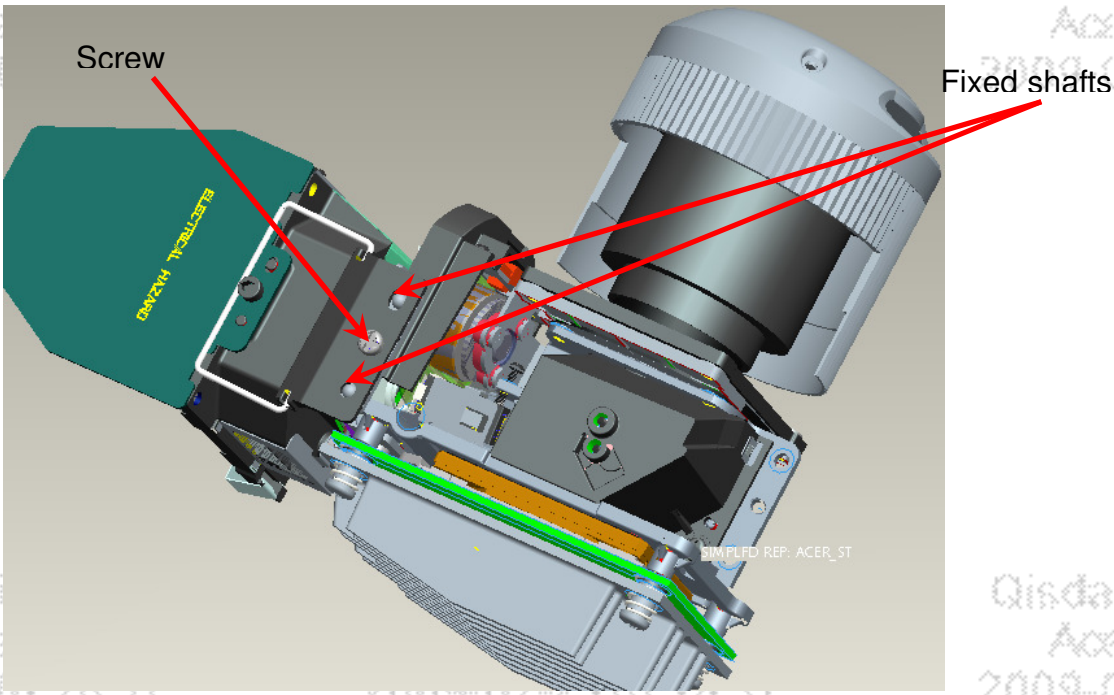


Fig. 7-13

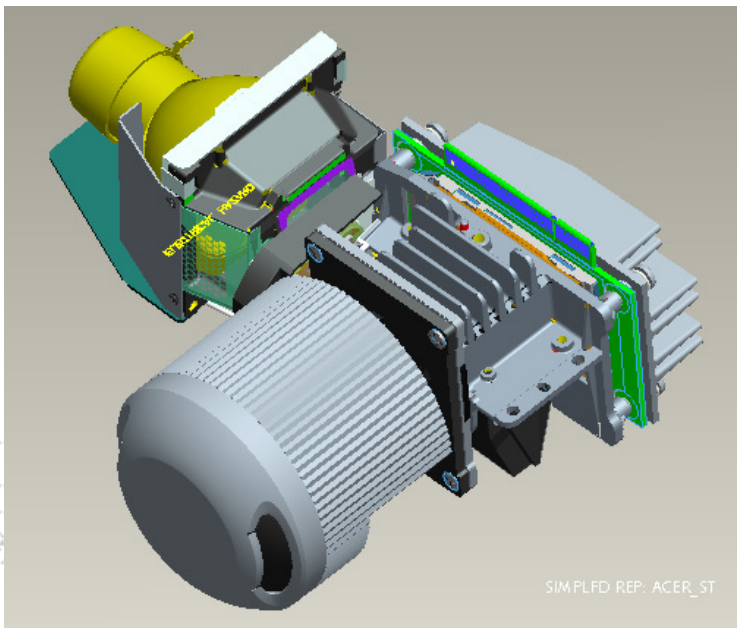
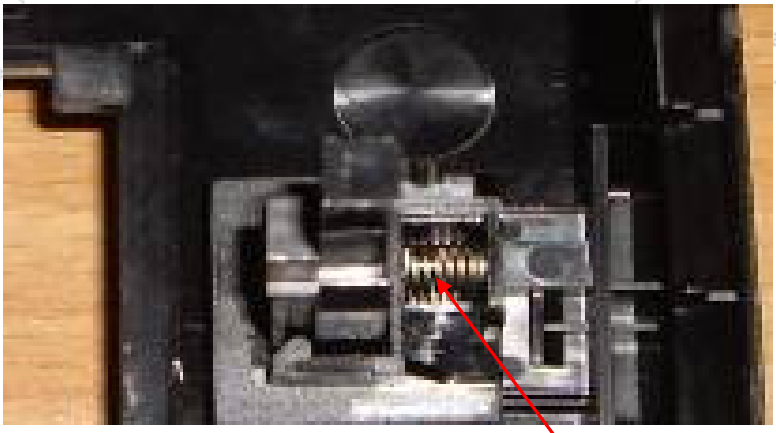


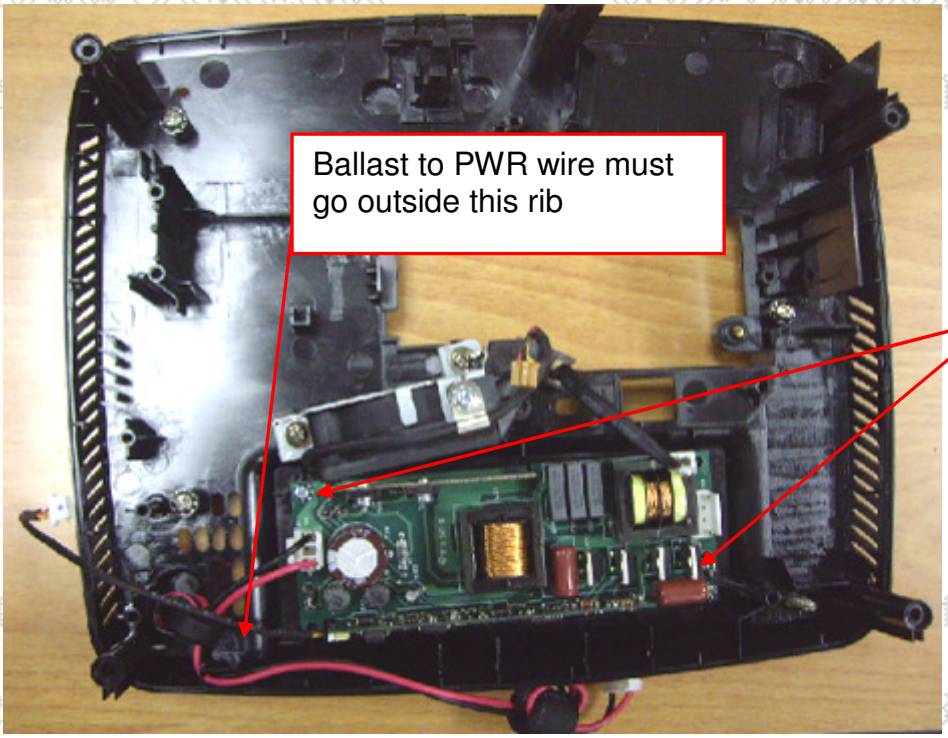
Fig. 7-14

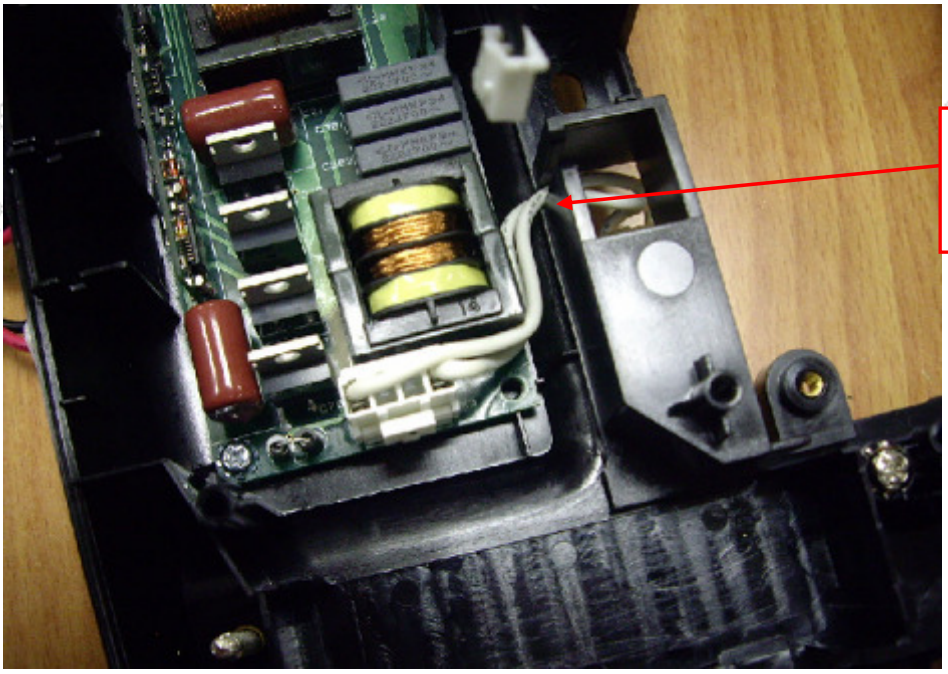
Module Assembly Key Point – Mechanical

1. lower case and Adjust foot

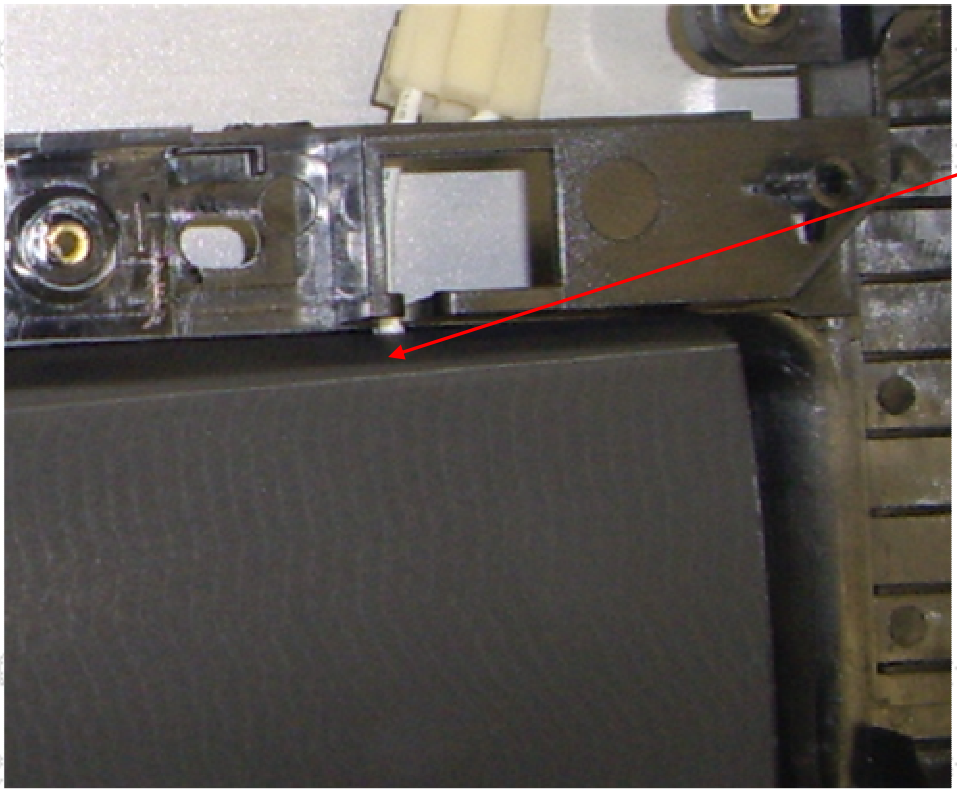


2. Ballast wire Alignment dressed

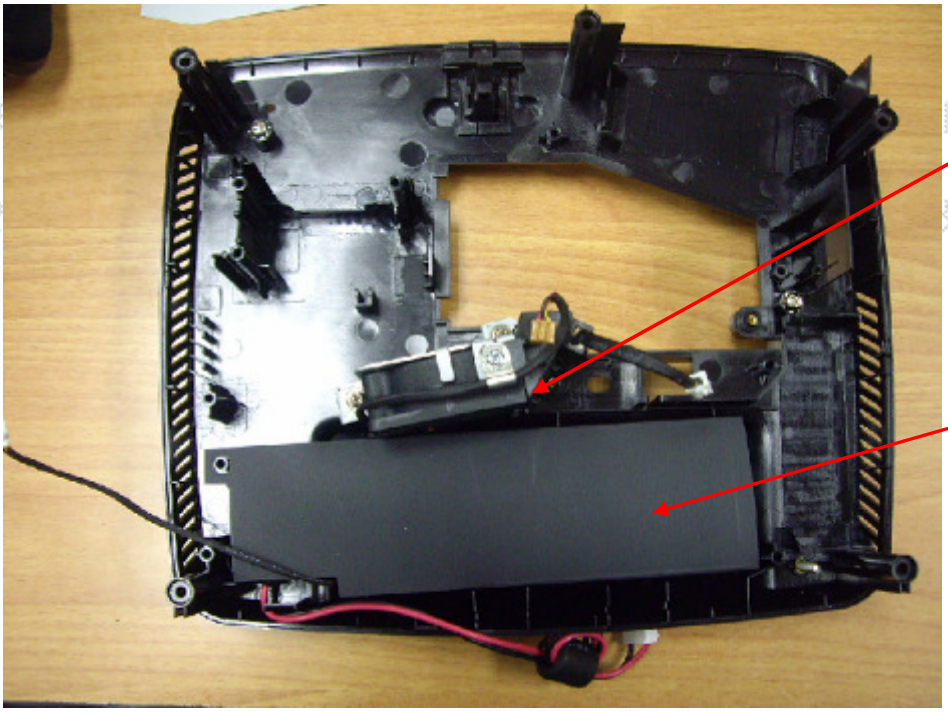




Ballast to Lamp wire should align in to this groove

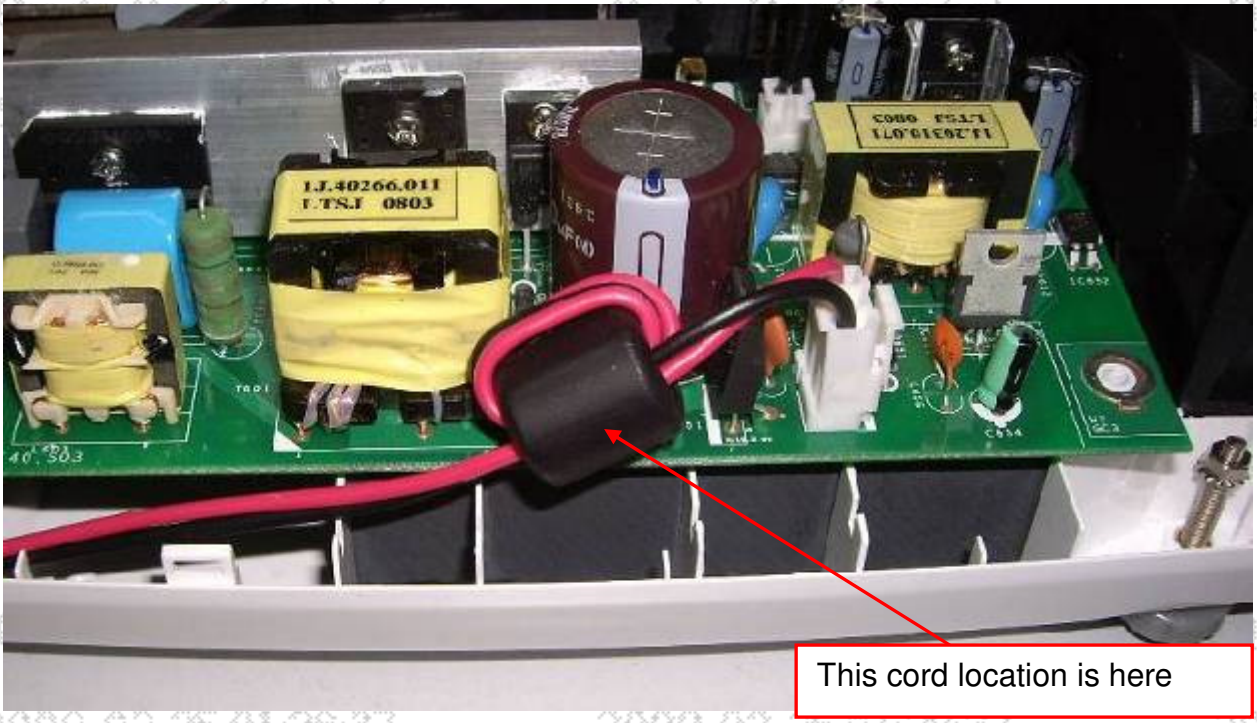


Ballast to Lamp wire also should align under Mylar groove



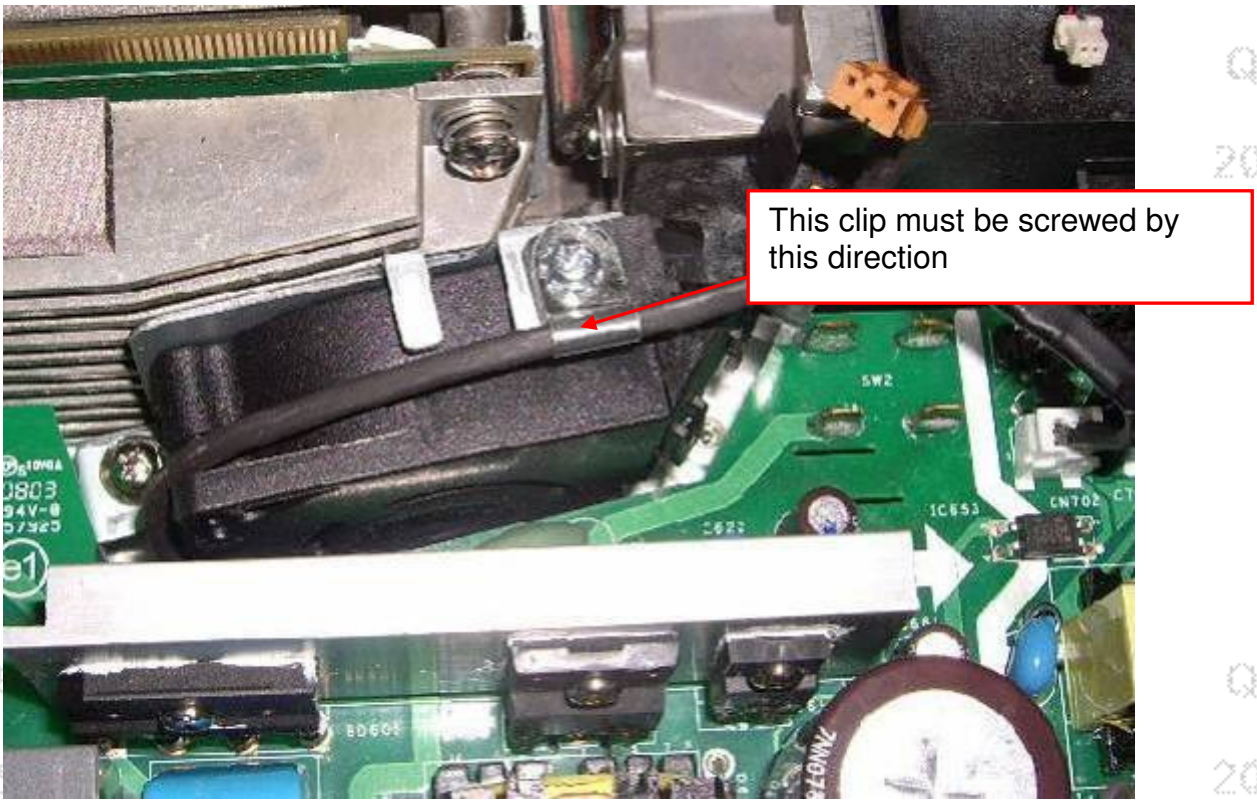
First: assy Blower module

Second: assy Mylar Ballast

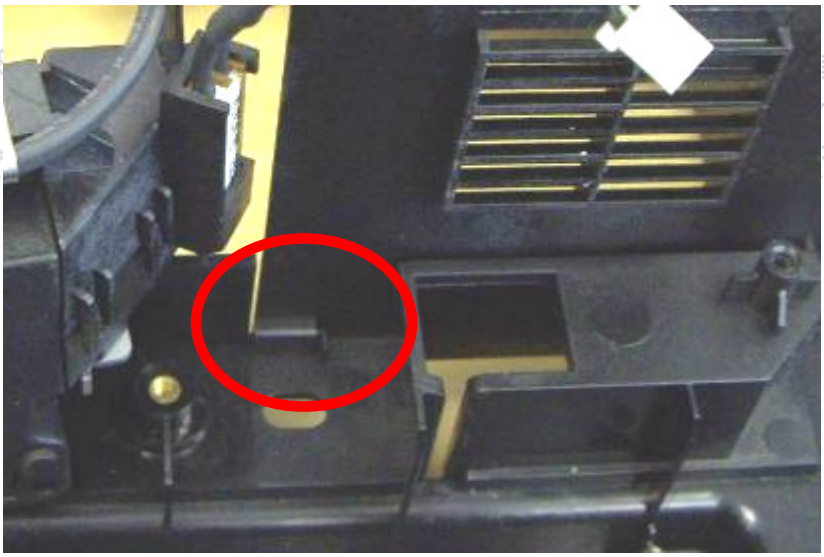


This cord location is here

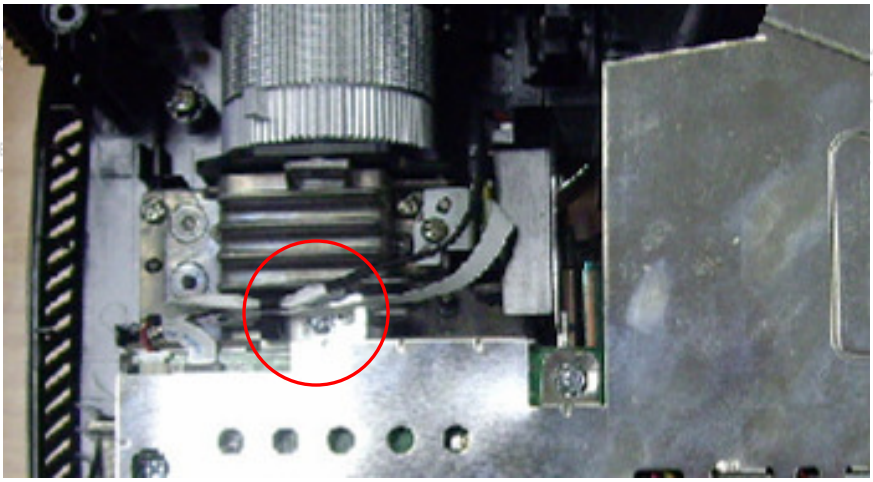
3. Blower wire alignment



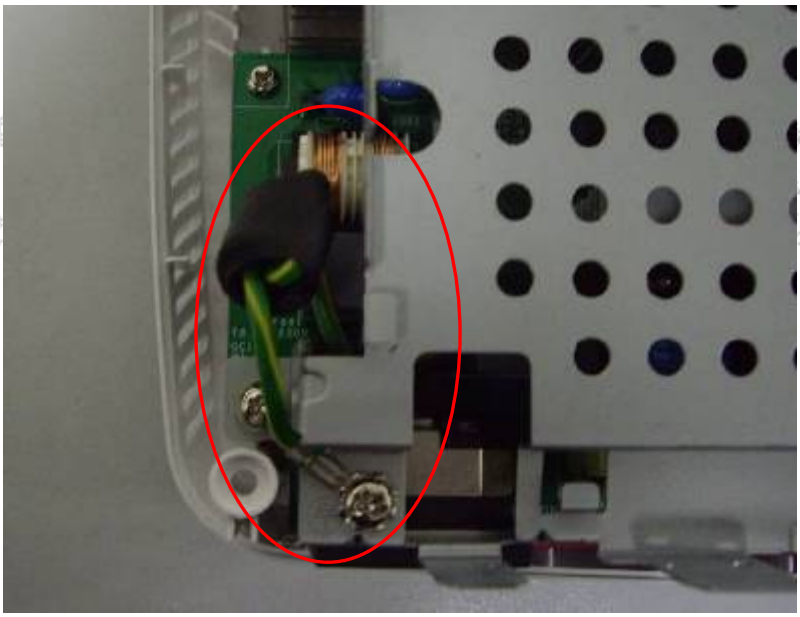
4. Lamp box must be assembled into lower case Rib



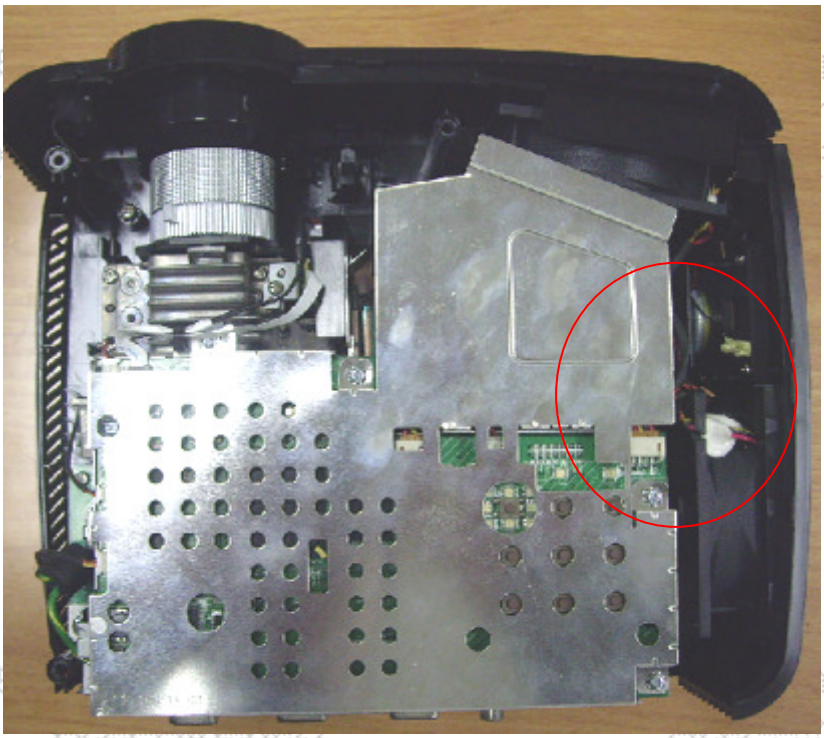
5. CW sensor board wire and CW FPC cable alignment



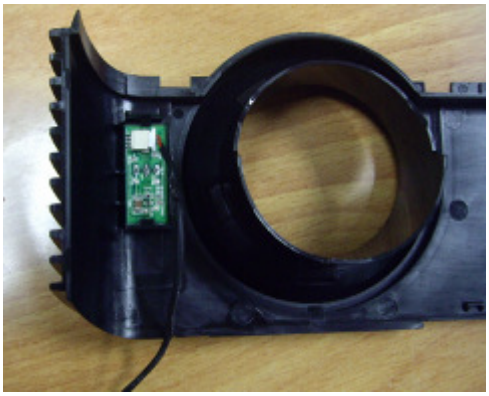
6. Grounding wire alignment

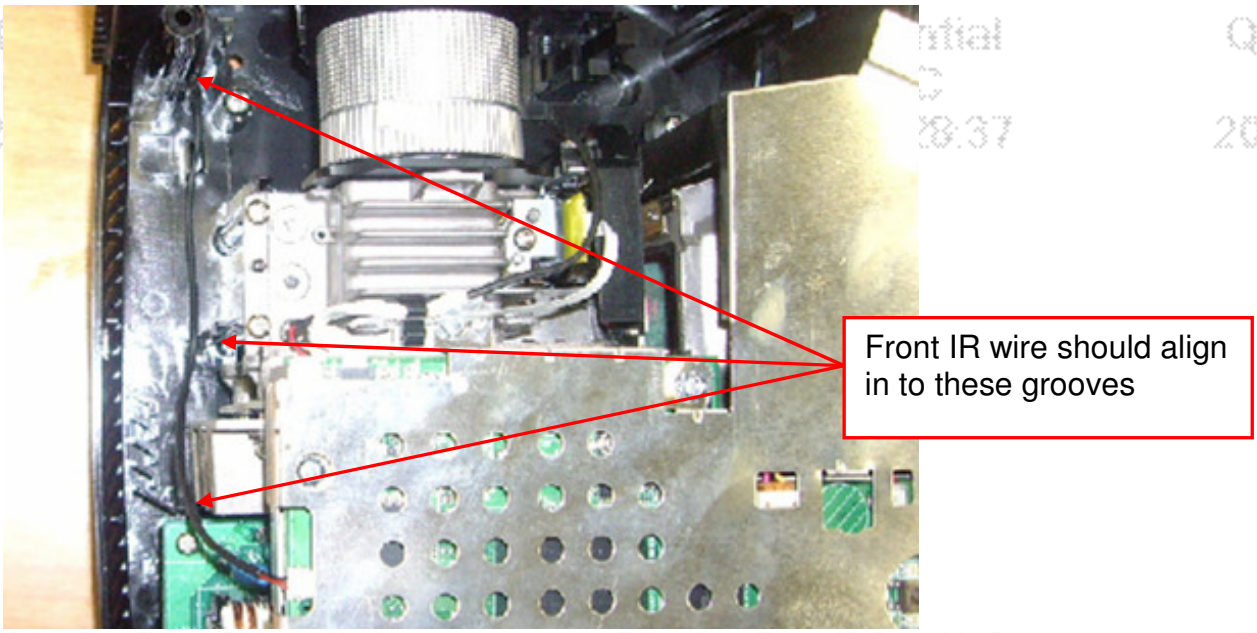


7. Twin Fan and Speaker wire alignment



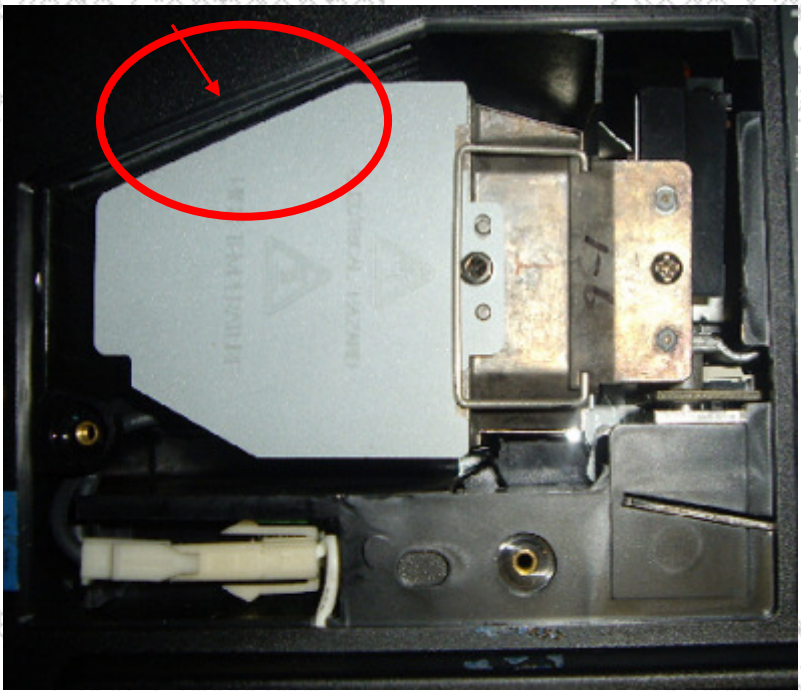
8. Front IR wire to MB alignment

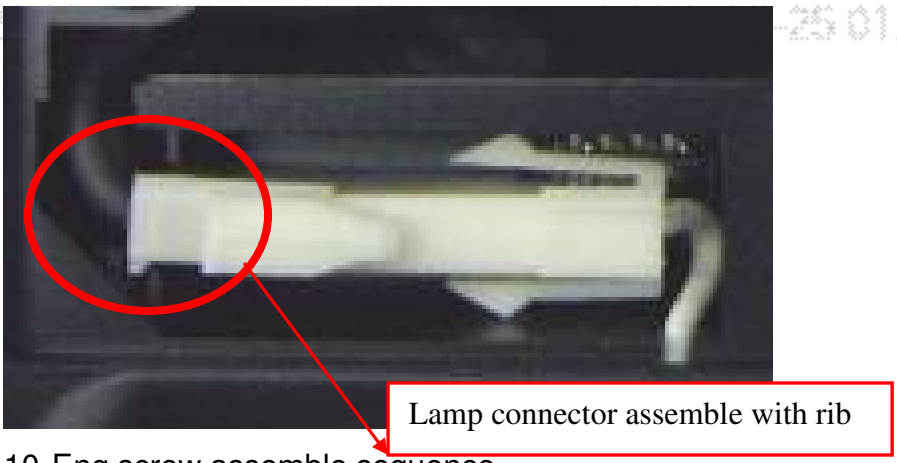




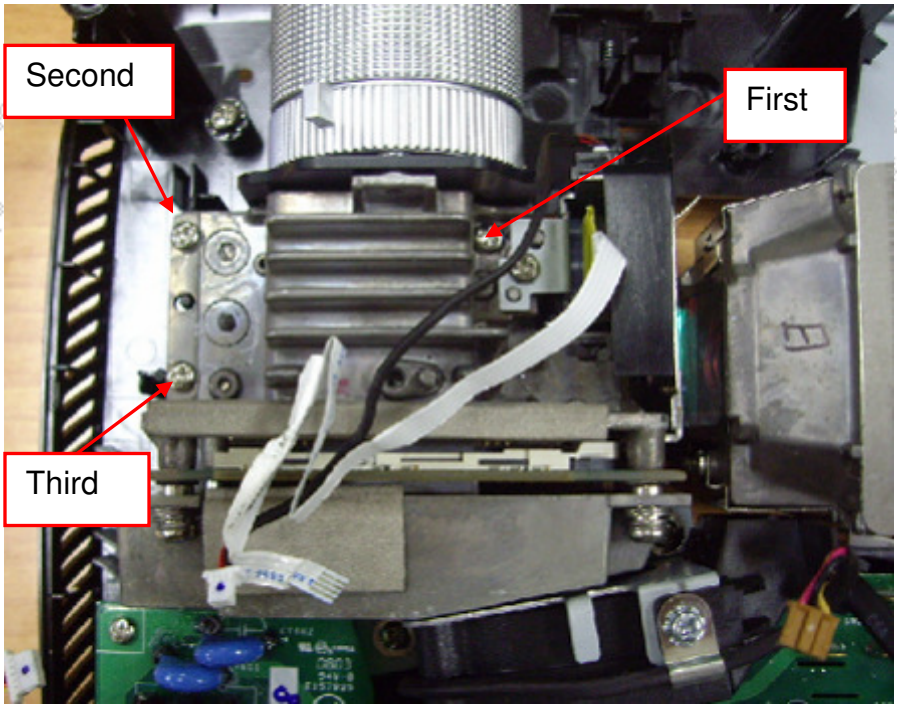
9. Ballast to lamp wire alignment

Lamp box should align with the lower case

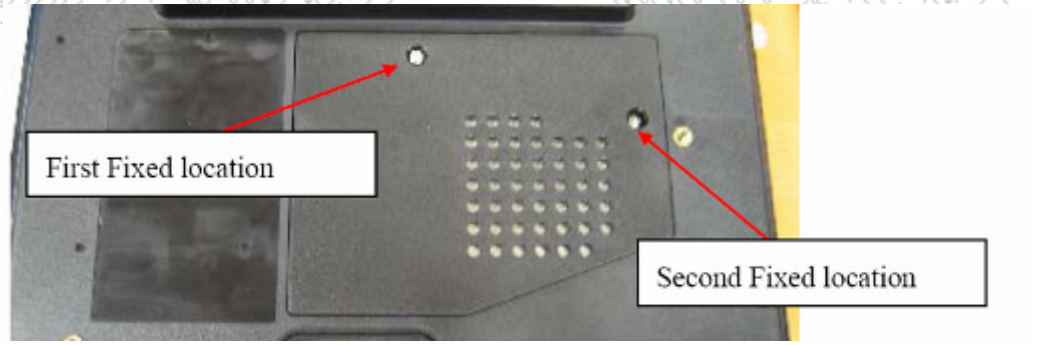




10. Eng screw assemble sequence

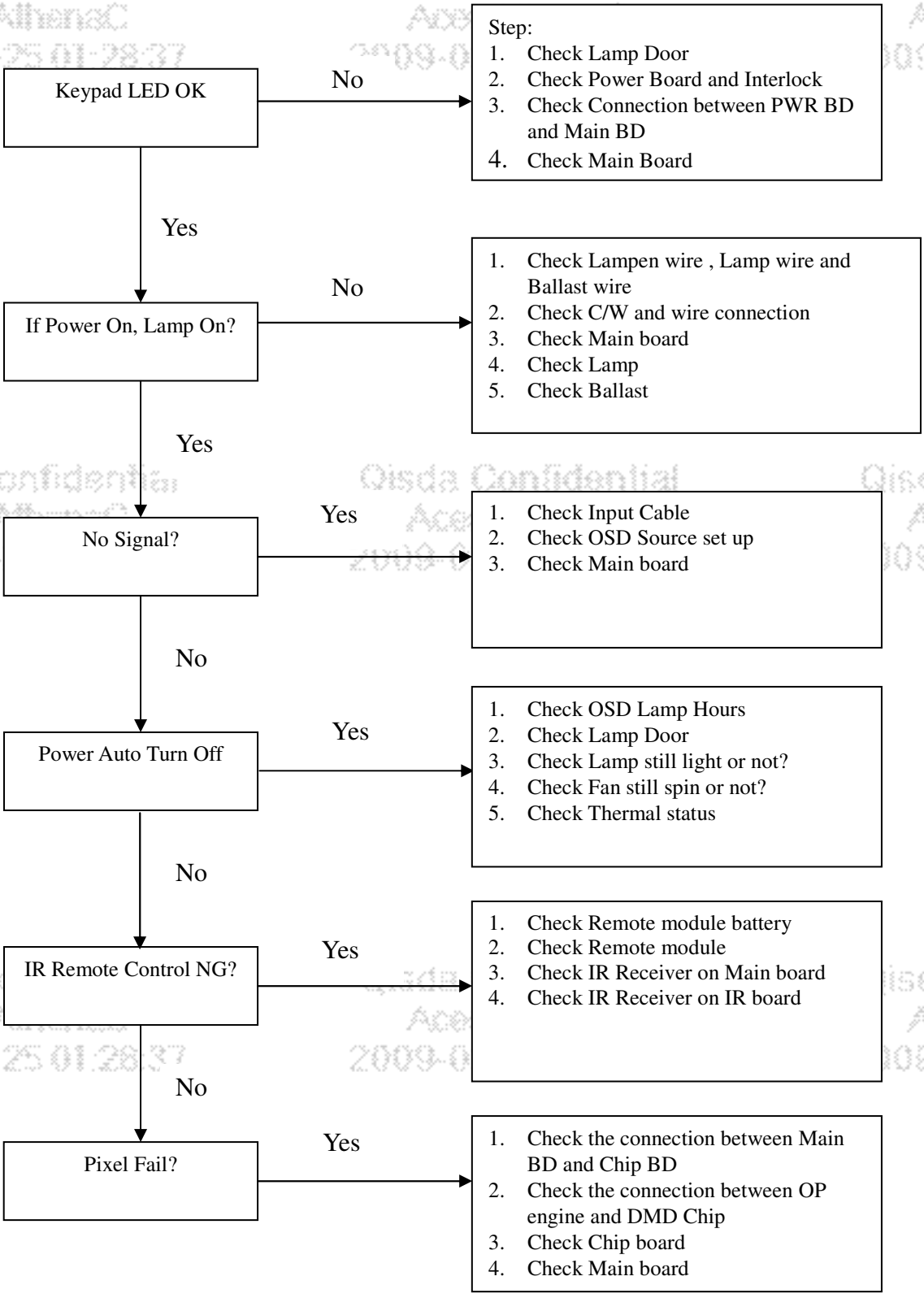


11. Lamp Door screw assemble sequence



Chapter 4 Troubleshooting

System Analysis



Optical Problems Checking Items

No.	Item	Trouble Shooting Guide
1	Brightness	1. Change lamp
2	Uniformity	1. Change lamp
3	FOFO Contrast	1. Check ADC calibration 2. Check user's menu brightness & contrast are default 3. Clean DMD 4. Clean PL 5. Check ILL stop assy
4	ANSI Contrast	1. Clean PL 2. Clean DMD 3. Change PL
5	Color	1. Check color wheel delay 2. Check CW 50% point. Replace CW if necessary
6	Color Uniformity	1. Change lamp
7	Blue Edge	1. Refer to next page 2. Change CM 3. Change SUB HSG
8	Blue/Purple Border	1. Refer to next page 2. Change CM 3. Change SUB HSG
9	Focus	1. Change Projection Lens 2. Check PL datum and DMD parallel
10	Dust	Clean DMD
11	Horizontal/Vertical Strips	1. Check connector between chip BD and Main BD 2. Re-install DMD with chip BD 3. Check if any pin of C-Spring is missing, damaged or dirty 4. Change new Chip BD/C-Spring 5. Change new DMD
12	Pixel Fail	Change new DMD

- “Blue Edge” Trouble Shooting:

I. Re-adjust “Overfill” first.

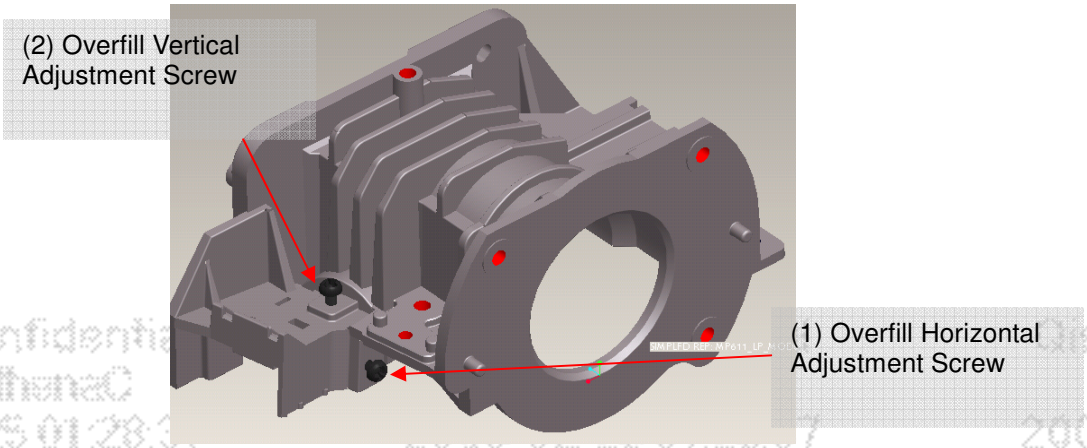
For Overfill Re-adjustment:

i. Those 2 Adjustment Screws must be released for around 2 mm first.

ii. Alignment Sequence:

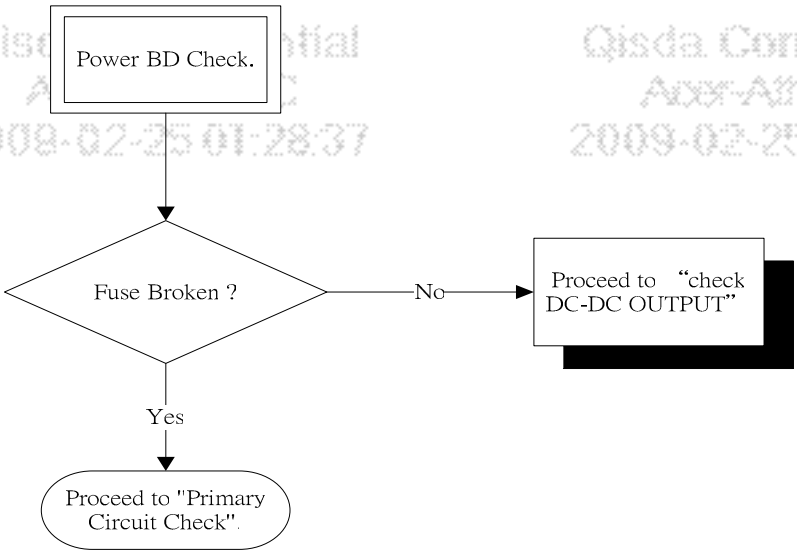
a. To adjust “Horizontal Adjustment Screw” firstly, then “Vertical Adjustment Screw”.

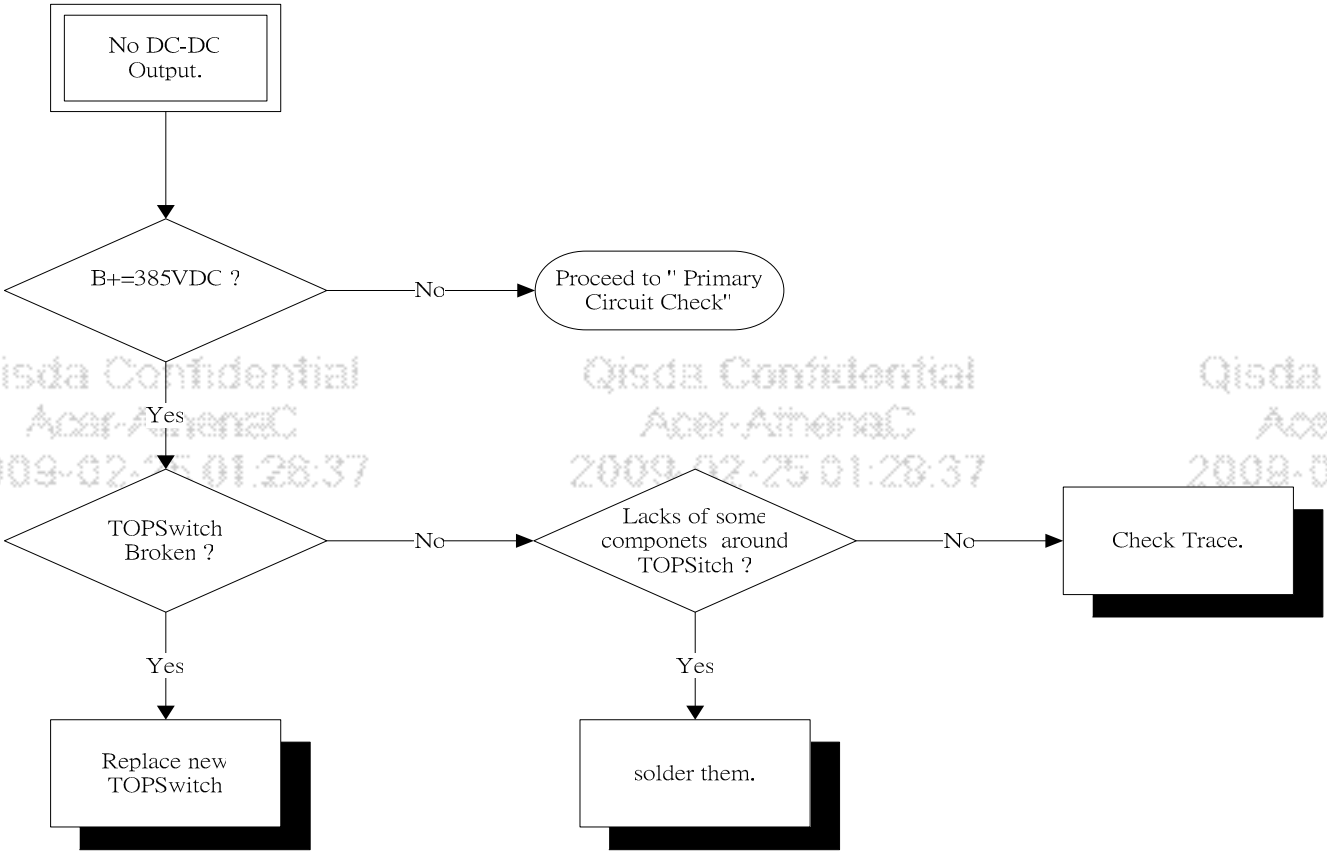
b. Refer to below Figure.

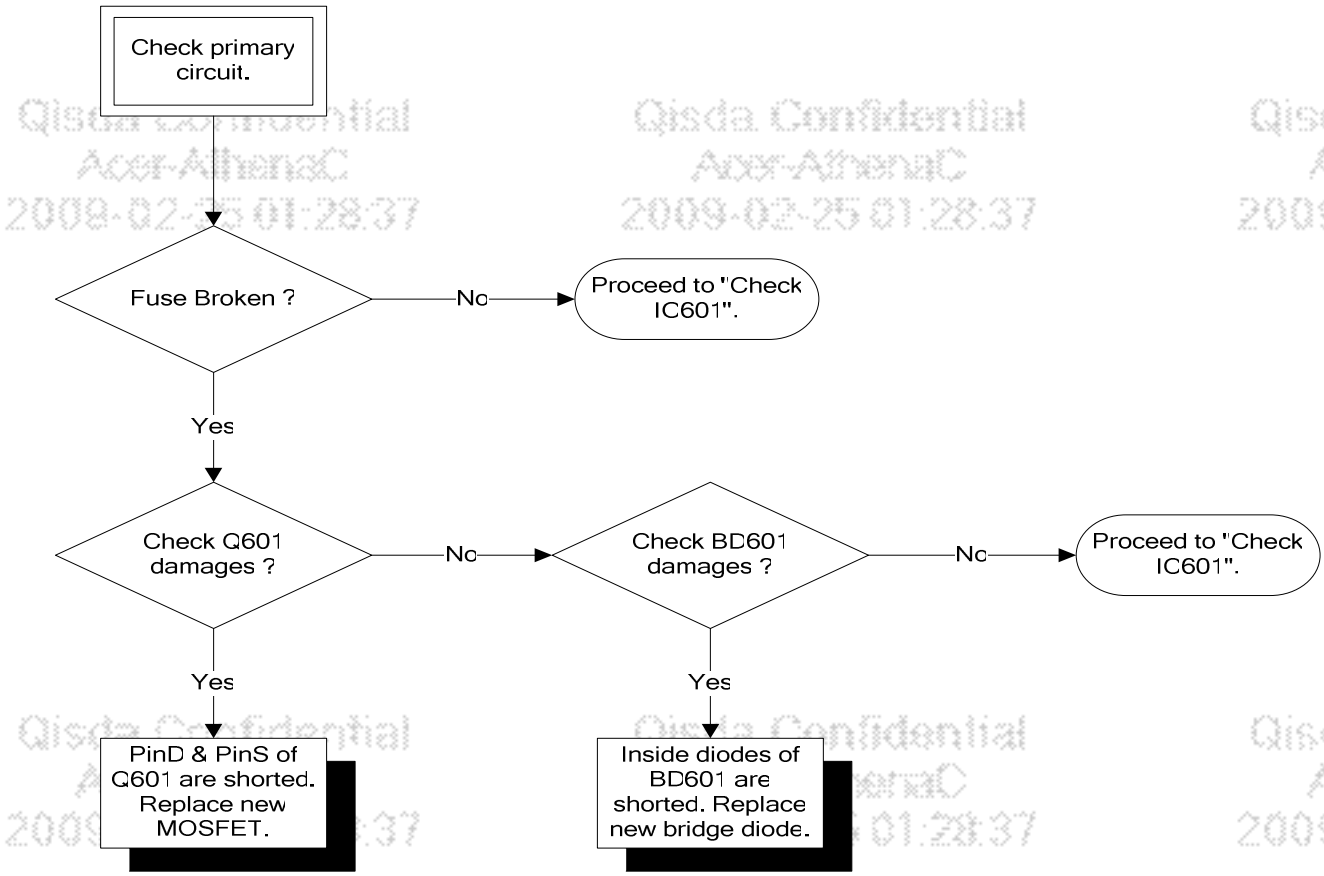


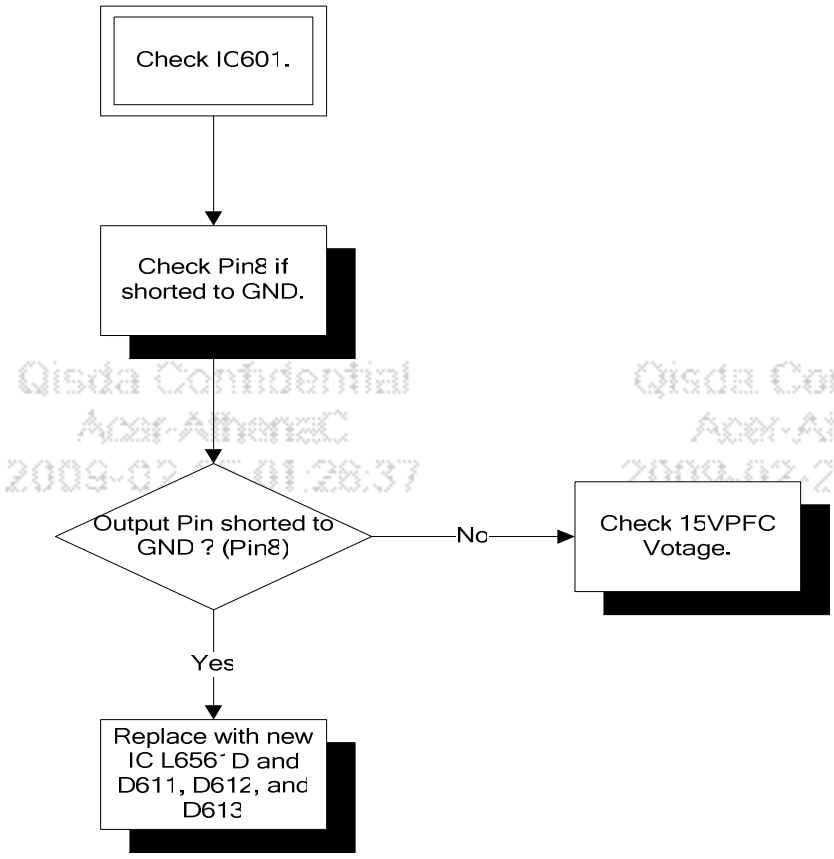
II. Re-assemble LP module—include LP, LP Baffle, LP clip.

Power Supply Problems Checking Flow







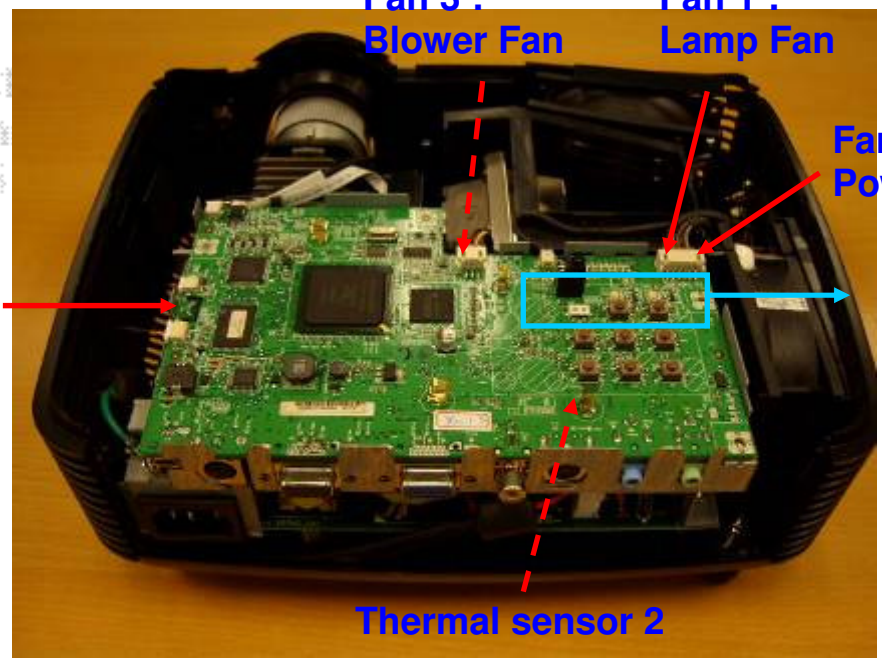


LED Messages Definition

External Status indicator

LED Name	Detailed Description
Power LED	Display the power on/off sequence status
Lamp Status LED	Display the Lamp status (Lamp fail, Lamp spoil etc.)
Temperature Status LED	Display the Thermal status (Fan Fail, Over Temperature, etc.)

	Lamp_LED	Temp_LED	Power_LED	Power_LED
	Red	Red	Red	Blue
Power Plug	Flash ON to OFF	Flash ON to OFF	Flash ON to OFF	- -
Standby	--	--	ON	--
Power button ON	--	--	--	ON
Lamp retry	--	--	--	0.5 second H(On), 0.5 second L(Off) flashing
Cooling state	--	--	0.5 second H(ON), 0.5 second L(OFF) flashing	--
Power button OFF: Cooling completed; Standby Mode	--	--	ON	--
Firmware Download	ON	ON	ON	--
Thermal sensor error (T2 ≧85℃) (Lamp Over Temperature) OSD shows “Projector Overheated”	--	ON	--	ON
Thermal sensor error (T1 ≧54℃) OSD shows “Projector Overheated”	--	ON	--	ON
Fan lock error OSD shows red “Fan Fail, Will automatically turn off soon”	--	0.5 second H(On), 0.5 second L(Off) flashing	--	ON
Lamp error (Lamp, ballast)	ON	--	--	ON
Color Wheel fail	0.5 second H(ON), 0.5 second L(OFF) flashing	--	--	ON



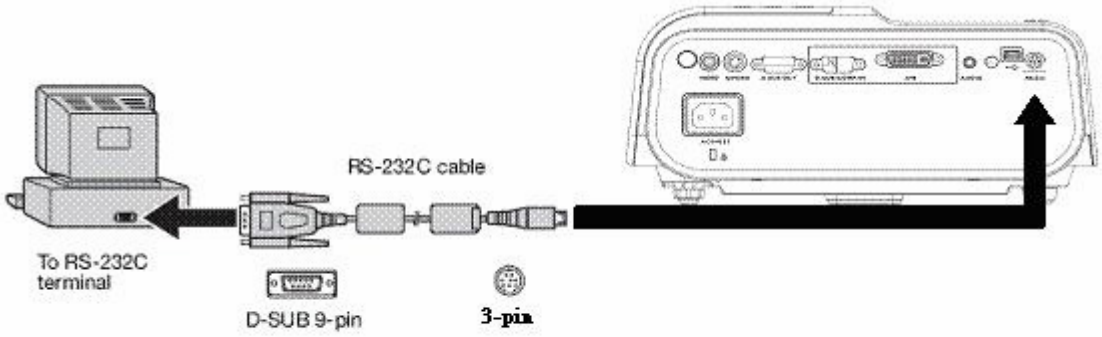
Error Count Messages Definition

Error Count	Definition	Specification
LAMP Fail error	LAMP OFF	DETECT LAMPLIT
FAN 1 Speed Error	LAMP FAN SPEED ERROR	SPEED OVER ± 20%
FAN 2 Speed Error	BALLAST FAN SPEED ERROR	SPEED OVER ± 20%
FAN 3 Speed Error	BLOWER FAN SPEED ERROR	SPEED OVER ± 20%
Sensor 1 Open Error	Main Board SENSOR ERROR	DETECT Sensor 1
Sensor 2 Open Error	Power board SENSOR ERROR	DETECT Sensor 2
Sensor 1 Short Error	Main Board SENSOR ERROR	DETECT Sensor 1
Sensor 2 Short Error	Power board SENSOR ERROR	DETECT Sensor 2
Temperature 1 Error	over limited temperature	N/A
Temperature 2 Error	over limited temperature	N/A
FAN IC I2C ERROR	I2C communication error	N/A

RS232 Connection

1. Connection:

Below shows the illustration of connection between PC and Projector.

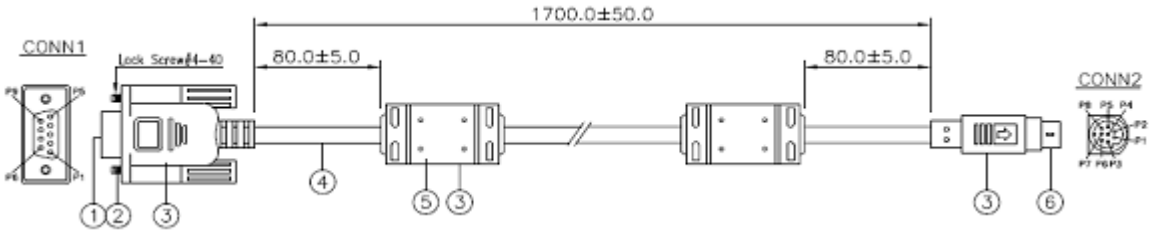


<CAUTION>

- Make sure that your computer and projector are turned off before connection.
- Power on the computer first, and then plug the power cord of the projector. (It may cause Com port incorrect function, if you do not follow this instruction)
- Adapters may be necessary depending on the PC connected to this projector. Please contact with your dealer for further details.

2. Hardware connection

<download cable 1>



<pin assignment for this two end>

WIRE RUN LIST		
CONN1	COLOR	CONN2
3	黑	5
7	棕	
4	紅	
5	橙	7
8	黃	
1	綠	
2	藍	3
9	白	
Shell	SHIELD	Shell

Interface Settings

RS-232 protocol	
Baud Rate	115200 bps
Data Length	8 bit
Parity Check	None
Stop Bit	1 bit
Flow Control	None

Command Category

Refer to Appendix A

Adjustment / Alignment Procedure

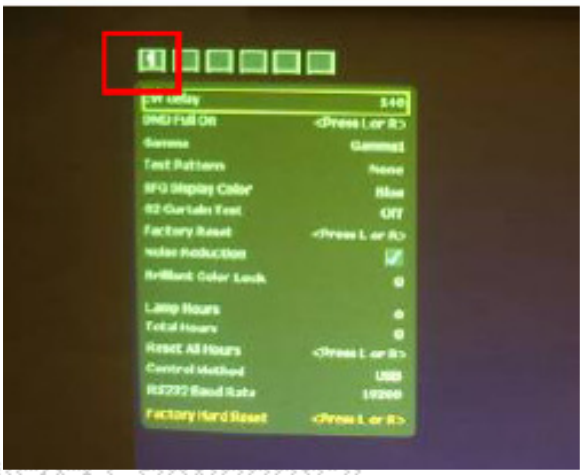
Content :

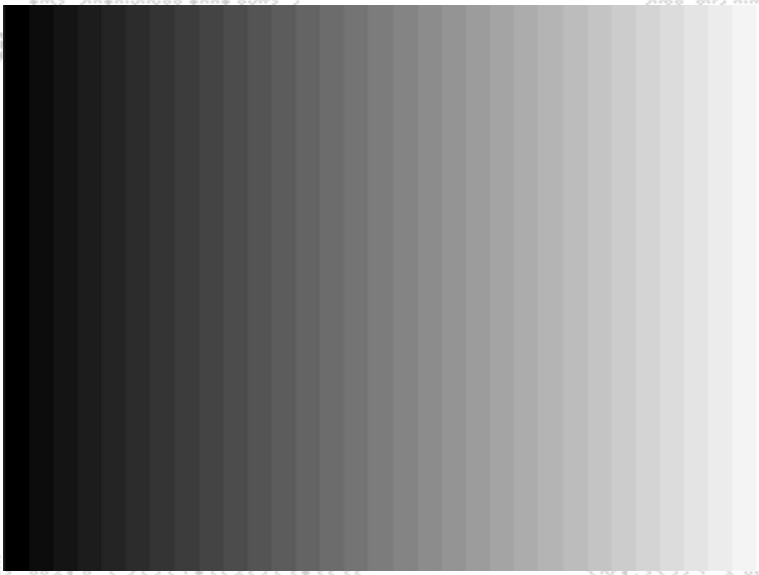
1. Color Wheel Delay Alignment
2. Overfill adjustment
3. PC Alignment Procedure
4. YUV Alignment Procedure
5. Keystone Calibration

1. Color Wheel Delay Alignment

Procedure:

1. Enter Factory Mode
2. Enter Block 1
3. Change CW Delay by adjusting the following gray pattern to smooth

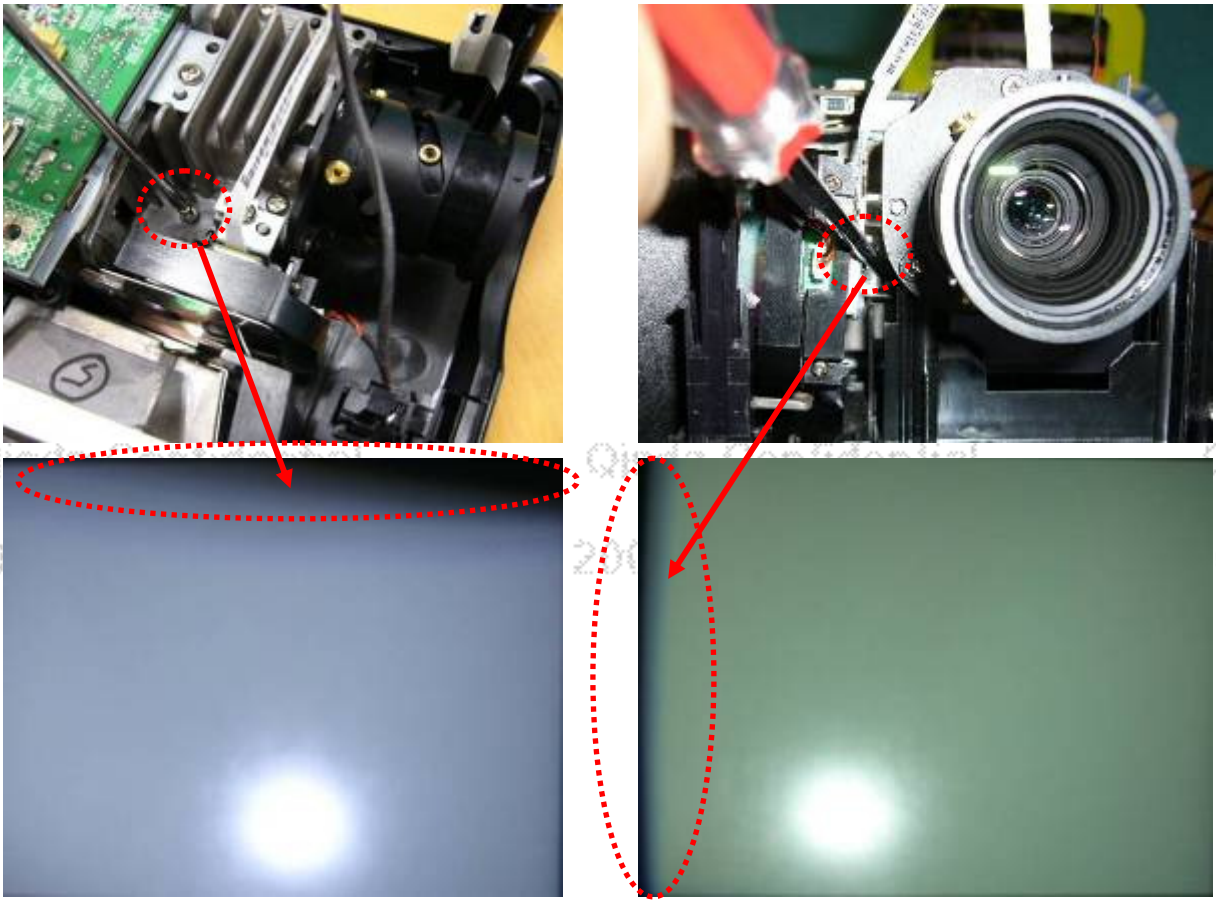




32 Gray pattern

2. Overfill adjustment (Blue Edge adjustment)

1. “Full White Pattern” is suggested for this alignment.
2. Adjust 2 LP-alignment Screws (upper side / lower front side of Optical Engine) behind Color Wheel.
3. Alignment Criteria is to adjust these 2 screws until “No Dark Edges” and “ No Shadows” can be observed in image.



3. PC Alignment Procedure

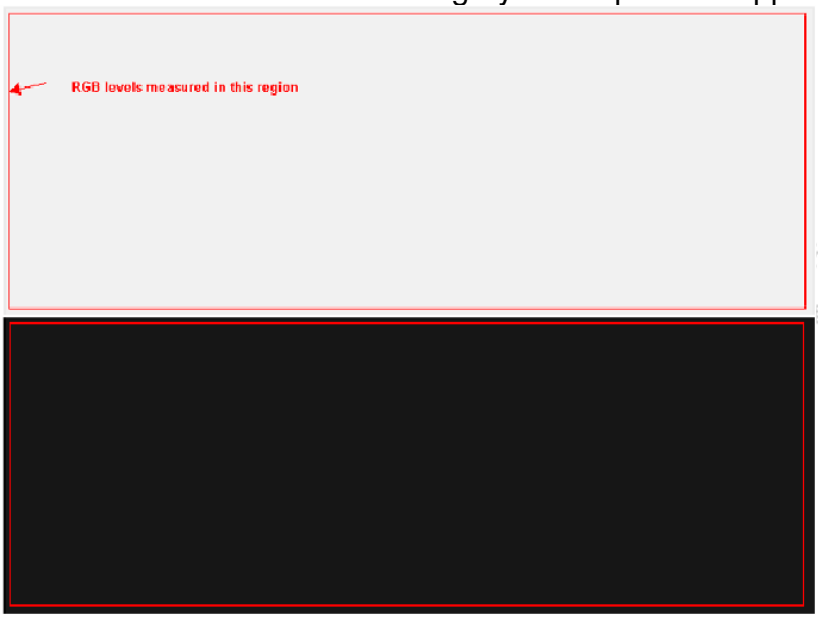
OSD Default value:

Item	Value
Cal R Offset	127
Cal G Offset	127
Cal B Offset	127
Cal R Gain	127
Cal G Gain	127
Cal B Gain	127
YPbPr R Offset	127
YPbPr B Offset	127

Procedure:

Gray Level:

1. Connect power, D-sub, into projector.
2. Change Timing and pattern of pattern generator:
3. Timing: 1024*768 @60Hz (XGA)
4. Pattern: As White-black pattern {A near white color (240,240,240) and a near black color(16,16,16)}
5. Light on projector
6. Set user OSD values to default.
7. Enter factory mode.
8. Set Factory values to default.
9. Press “Calibration RGB” to let the black level to just distinguish, and the light output of white level to just max.
10. Check the 32 levels of gray. All steps must appear.



White-black pattern

4. YUV Alignment Procedure

OSD Default value:

Item	Value
Cal R Offset	127
Cal G Offset	127
Cal B Offset	127
Cal R Gain	127
Cal G Gain	127
Cal B Gain	127
YPbPr R Offset	127
YPbPr B Offset	127

Procedure:

1. Connect power, YpbPr cable (only G cable from DVD player) into projector.
2. Change Timing and play below Color-bar pattern from DVD player.

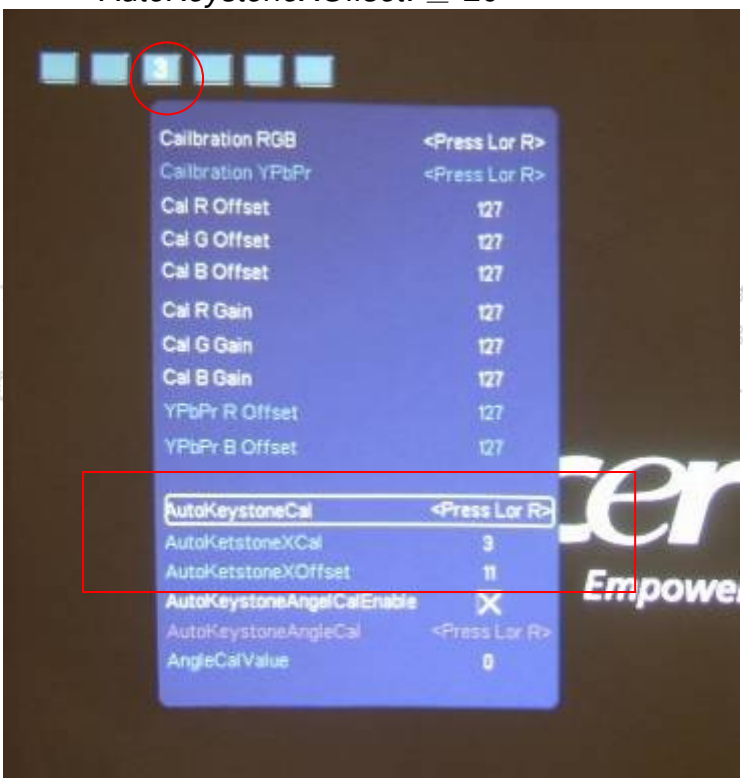
   Timing: 480i
   Pattern: Color-bar pattern
   (since only G cable is connected, the projected image shows the color bar as black and white)
3. Light on projector
4. Enter factory mode.
5. Press “Calibration YpbPr” to calibrate the mid level offset.
6. It’s completed.

Color-bar pattern

5. Keystone Calibration

Condition：Horizontal plane(0°)

1. Make projector be horizontal
2. Enter factory menu
3. Enter into Block [3] in factory menu
4. Select item “AutoKeystoneCal”
5. Press key Left or Right to do auto calibration
6. Finish 0° calibration and bellow items will show data:
   AutoKeystoneXCal: ≦ 5
   AutoKeystoneXOffset: ≦ 20



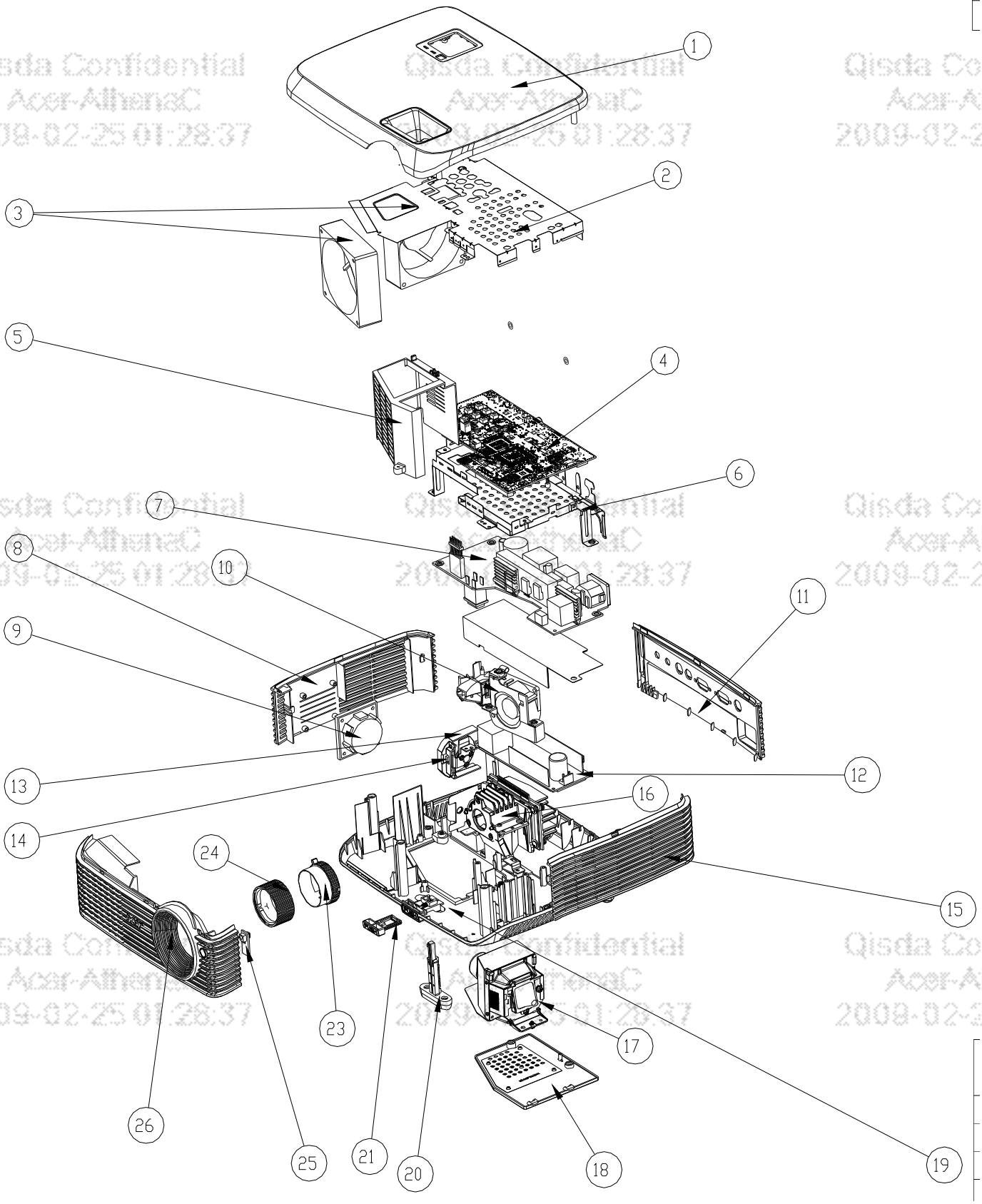
Chapter 5 FRU List

Exploded Diagram

Module 1 – Total Exploded View

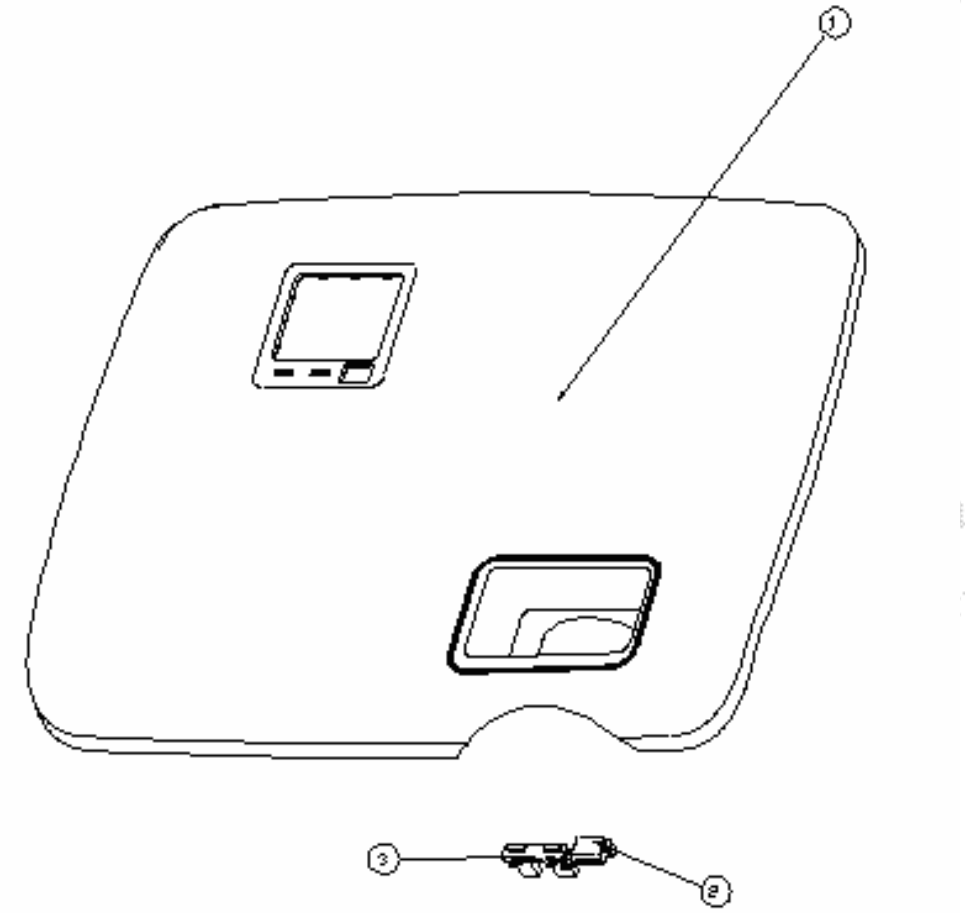
NO.	DESCRIPTION	Q'TY
1	ASSY CASE UPPER MERCURY 3	1
2	SHD MB SPTE MERCURY 3	1
3	FAN*2 80*25 105MM AD0812UB/HX	1
4	PCBA MAIN BD MJ MERCURY 3	1
5	BOX LAMP PPS MP522	1
6	SHD PWR BD SECC MP522	1
7	PCBA POWER BD MJ MP522	1
8	CASE OUTLET PC MERCURY VI	1
9	SPK 5W 8OHM 17OMM W4646CPF	1
10	ASSY BLOWER MODULE MP522	1
11	CASE REAR PC MERCURY 3	1
12	BALLAST 185W 2.5KV EUC185DV/11	1
13	CW MODULE	1
14	PCBA SENSOR BD/PG8250 MJ	1
15	CASE INLET PC MERCURY VI	1
16	OPT ENGINE MODULE XGA	1
17	LAMP MODULE	1
18	ASSY LAMP DOOR MP522	1
19	ASSY CASE LOWER MERCURY 3	1
20	FOOT ADJFOOT PC MP622	1
21	BUTTON PUSH PC MERCURY VI	1
22	ASSY LENS ZOOM MP522 ADCJ	1
23	RING ZOOM PC MP522	1
24	RING FOCUS PC MERCURY 3	1
25	PCBA IR BD MJ MP522	1
26	ASSY SUB CASE FRONT MERCURY 3	1

Note :
(item 9) There's no Speaker in X1130.
(item 23) There's no Zoom Ring in X1230S

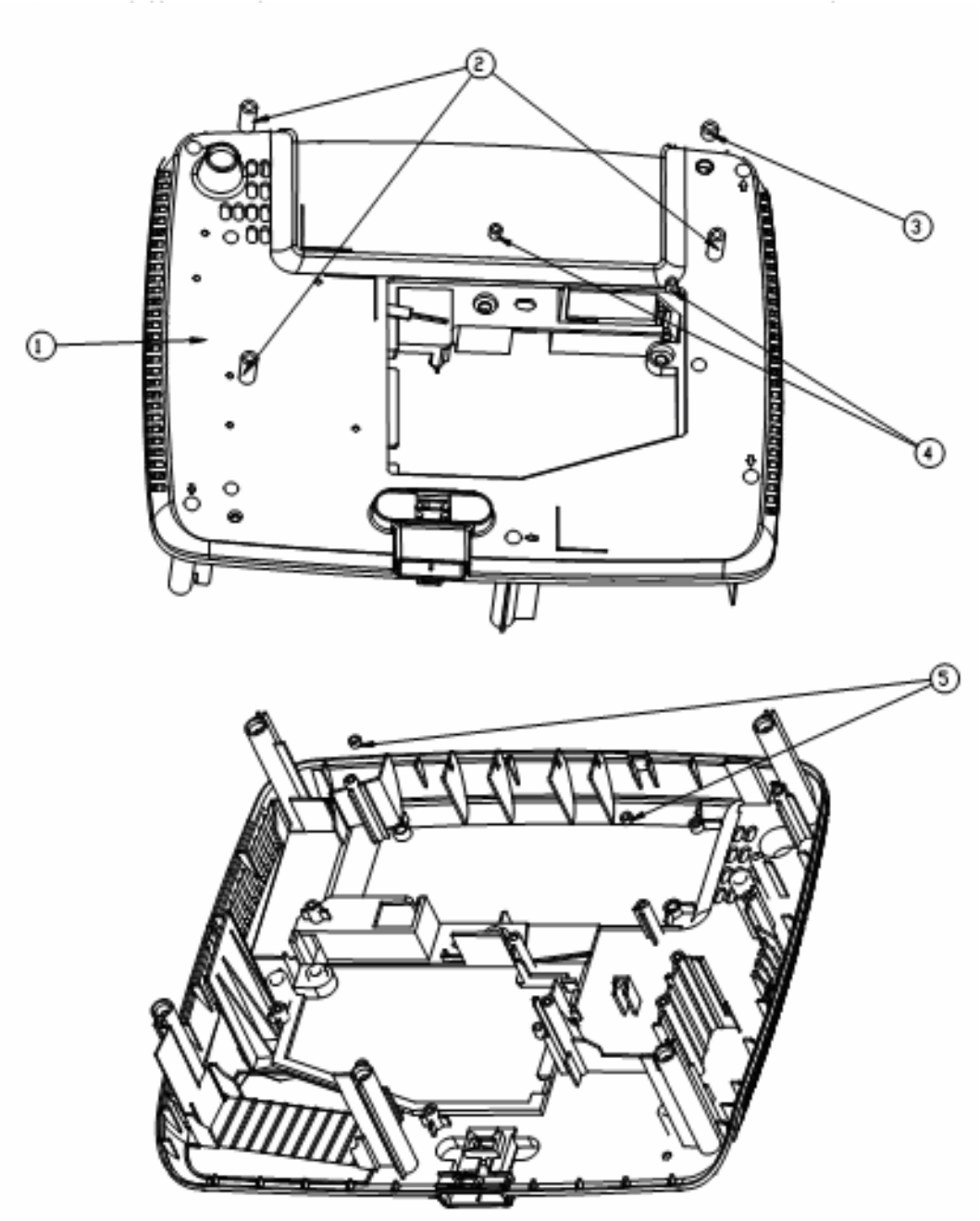


Module 2 – ASSY UPPER CASE

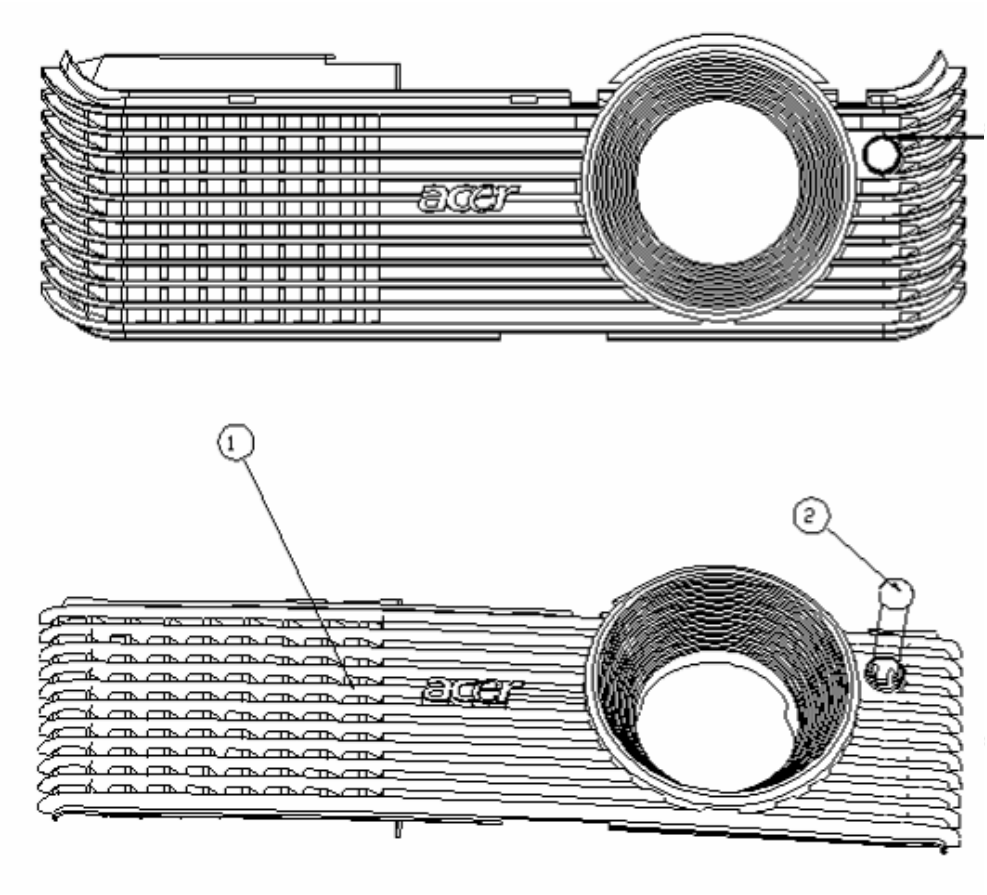
NO	Part Name	Quantity
3	LEN LED ABS MERCURY3	1
2	LEN IR ABS MERCURY3	1
1	CASE UPPER MERCURY 3	1



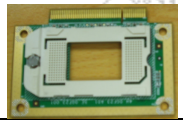
Module 3 – ASSY LOWER CASE

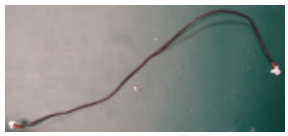
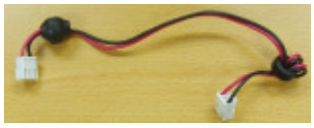


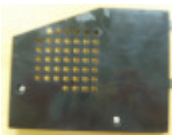
Module 4 – ASSY FRONT CASE

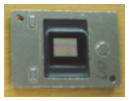
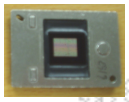
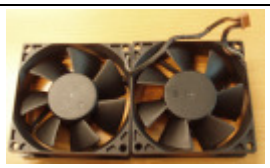


FRU List

Use in Model	CATEGORY	PARTNAME	ACER PART NO.	Photo
X1130/ X1230/ X1230S	ACCESSORY	REMOTE CONTROLLER (25 keys w/o Laser)	VZ.J9000.001	
X1130	BOARD	MAIN BOARD(W/ KEYPAD BOARD)	55.J900Q.001	
X1230/X1230S	BOARD	MAIN BOARD	55.J910Q.001	
X1130/ X1230/ X1230S	BOARD	BALLAST (LAMP DRIVER)	55.J900Q.002	
X1130/ X1230/ X1230S	BOARD	POWER BOARD	55.J900Q.003	
X1130/ X1230/ X1230S	BOARD	DMD CHIP BAOD	55.J900Q.004	
X1130/ X1230/ X1230S	BOARD	IR SENSOR BOARD	55.J900Q.005	
X1130/ X1230/ X1230S	CABLE	POWER CORD UK	27.LDW0Q.001	-
X1130/ X1230/ X1230S	CABLE	POWER CORD EUR	27.LBJ0Q.001	-
X1130/ X1230/ X1230S	CABLE	POWER CORD SWIS	50.LE20Q.004	-
X1130/ X1230/ X1230S	CABLE	POWER CORD ARF	27.LCE0Q.002	-
X1130/ X1230/ X1230S	CABLE	POWER CORD US	27.LBJ0Q.002	-
X1130/ X1230/ X1230S	CABLE	POWER CORD AUS	27.LBJ0Q.004	-
X1130/ X1230/ X1230S	CABLE	POWER CORD CHINA	50.LE10Q.004	-

X1130/ X1230/ X1230S	CABLE	POWER CORD THAILAND	27.J900Q.001	-
X1130/ X1230/ X1230S	CABLE	POWER CORD INDIA	27.LCE0Q.001	-
X1130/ X1230/ X1230S	CABLE	POWER CORD JP	27.LE20Q.001	-
X1130/ X1230/ X1230S	CABLE	D-SUB CABLE	50.J900Q.001	-
X1130/ X1230/ X1230S	CABLE	RCA CABLE	50.J900Q.002	-
X1130/ X1230/ X1230S	CABLE	CABLE M/B TO IR BOARD	50.J900Q.003	
X1130/ X1230/ X1230S	CABLE	CABLE BALLAST TO LAMP	50.J900Q.004	
X1130/ X1230/ X1230S	CABLE	CABLE POWER BOARD TO BALLAST	50.J900Q.005	
X1130/ X1230/ X1230S	CABLE	CABLE M/B TO BALLAST	50.J900Q.006	
X1130	CASE/COVER/BRACKET ASSEMBLY	REAR CASE	60.J900Q.001	
X1230/ X1230S	CASE/COVER/BRACKET ASSEMBLY	REAR CASE	60.J910Q.001	
X1130/ X1230/ X1230S	CASE/COVER/BRACKET ASSEMBLY	INLET CASE	60.J900Q.002	
X1130/ X1230/ X1230S	CASE/COVER/BRACKET ASSEMBLY	OUTLET CASE	60.J900Q.003	

X1130/ X1230	CASE/COVER/BRACKET ASSEMBLY	UPPER CASE (W/ KEYPAD RUBBER& BRACKET)	60.J900Q.004	
X1230S	CASE/COVER/BRACKET ASSEMBLY	UPPER CASE (W/ KEYPAD RUBBER& BRACKET)	60.J920Q.001	
X1130/ X1230/ X1230S	CASE/COVER/BRACKET ASSEMBLY	LOWER CASE (W/ ADJUST FOOT)	60.J900Q.005	
X1130/ X1230	CASE/COVER/BRACKET ASSEMBLY	FRONT CASE (W/O IR BOARD)	60.J900Q.006	
X1230S	CASE/COVER/BRACKET ASSEMBLY	FRONY CASE (W/O IR BOARD)	60.J920Q.002	
X1130/ X1230/ X1230S	CASE/COVER/BRACKET ASSEMBLY	LAMP DOOR	60.J900Q.007	
X1130/ X1230	CASE/COVER/BRACKET ASSEMBLY	ZOOM RING	60.J900Q.008	
X1130/ X1230	CASE/COVER/BRACKET ASSEMBLY	FOCUS RING	60.J900Q.009	
X1230S	CASE/COVER/BRACKET ASSEMBLY	FOCUS RING	60.J920Q.003	
X1130/ X1230/ X1230S	DIGITAL LIGHT DEVICE	Phillips X1130/X1230/X1230T Lamp Module 189W	EC.J9000.001	
X1130/ X1230/ X1230S	DIGITAL LIGHT DEVICE	COLOR WHEEL MODULE(W/ SENSOR BD & CABLE)	57.J900Q.001	

X1130/ X1230/ X1230S	DIGITAL LIGHT DEVICE	LIGHT PIPE	57.J900Q.002	
X1130/ X1230	DIGITAL LIGHT DEVICE	LENS	57.J900Q.003	
X1230S	DIGITAL LIGHT DEVICE	LENS	57.J920Q.001	
X1130	DIGITAL LIGHT DEVICE	DMD CHIP	57.J900Q.004	
X1230/ X1230S	DIGITAL LIGHT DEVICE	DMD CHIP	57.J910Q.001	
X1130	DIGITAL LIGHT DEVICE	ENGINE MODULE	57.J900Q.005	
X1230/ X1230S	DIGITAL LIGHT DEVICE	ENGINE MODULE	57.J910Q.002	
X1130/ X1230/ X1230S	FAN	FAN (X2)	23.J900Q.001	
X1130/ X1230/ X1230S	FAN	FAN BLOWER MODULE	23.J900Q.002	
X1230/ X1230S	SPEAKER	SPEAKER	23.J910Q.001	
X1130/ X1230/ X1230S	MISCELLANEOUS	FOOT ADJFOOT	47.J900Q.001	
X1130/ X1230/ X1230S	MISCELLANEOUS	RUBBER ADJFOOT PAD	47.J900Q.002	

(Note) The updated P/N refers to latest Spare Part List

Appendix A - Code List: IR / RS232 / DDC Data

1. Remote Control Code:

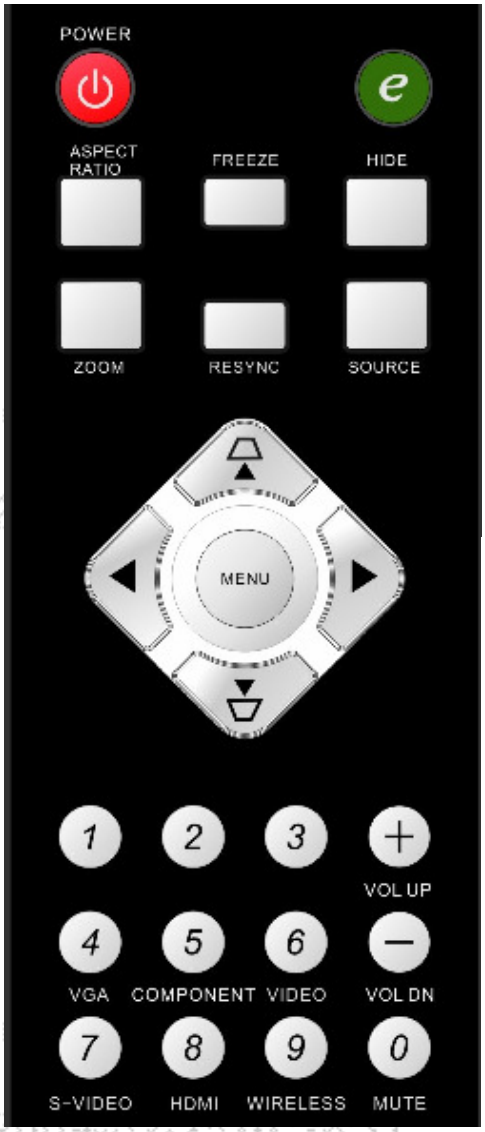
IR setting value

Frequency: 38kHz

Protocal: NEC format

b. IR command code

Customer code：0813



87			80
60	8E		8F
8B	8D		8C
	82		
83	84		81
	85		
6D	6E	6F	63
65	66	67	64
68	6C	71	61

2. RS-232 Command Code

General command type (Projector 'receives' commands)

No	Code (character)	Function feature	Note
1	OKOKOKOKOK	Power On	support
2	* 0 IR 001	Power On	support
3	* 0 IR 002	Power Off	support
4	* 0 IR 004	Keystone	support
5	* 0 IR 006	Mute	support
6	* 0 IR 007	Freeze	support
7	* 0 IR 008	Menu	support
8	* 0 IR 009	Up	support
9	* 0 IR 010	Down	support
10	* 0 IR 011	Right	support
11	* 0 IR 012	Left	support
12	* 0 IR 013	Enter	**Unsupport**
13	* 0 IR 014	Re-Sync	support
14	* 0 IR 015	Source Analog RGB for D-sub	support
15	* 0 IR 016	Source Digital RGB	**Unsupport**
16	* 0 IR 017	Source PbPr for D-sub	support
17	* 0 IR 018	Source S-Video	support
18	* 0 IR 019	Source Composite Video	support
19	* 0 IR 020	Source Component Video	support
20	* 0 IR 021	Aspect ratio 16:9	support
21	* 0 IR 022	Aspect ratio 4:3	support
22	* 0 IR 023	Volume +	support
23	* 0 IR 024	Volume –	support
24	* 0 IR 025	Brightness	support
25	* 0 IR 026	Contrast	support
26	* 0 IR 027	Color Temperature	support
27	* 0 IR 028	Source Analog RGB for DVI Port	**Unsupport**
28	* 0 IR 029	Source Analog YPbPr for DVI Port	**Unsupport**
29	* 0 IR 030	Hide	support
30	* 0 IR 031	Source	support
31	* 0 IR 032	Video: Color saturation adjustment	support
32	* 0 IR 033	Video: Hue adjustment	support
33	* 0 IR 034	Video: Sharpness adjustment	support
34	* 0 IR 035	Query Model name	support
35	* 0 IR 036	Query Native display resolution	support
36	* 0 IR 037	Query company name	support
37	* 0 IR 040	Aspect ratioL.Box	**Unsupport**
38	* 0 IR 041	Aspect ratio 1:1	**Unsupport**
39	* 0 IR 042	Keystone Up	support
40	* 0 IR 043	Keystone Down	support

41	* 0 IR 044	Keystone Left	**Unsupport**
42	* 0 IR 045	Keystone Right	**Unsupport**
43	* 0 IR 046	Zoom	support
44	* 0 IR 047	e-Key	support
45	* 0 IR 048	Color RGB	support
46	* 0 IR 049	Language	support
47	* 0 IR 050	Source HDMI	support

General command type (Projector 'transmits' commands)

NO	Code (character)	Function feature	Note
1	Model XXXXXXXX	Return the Model name	support
2	Res XXXXX	Return the Native display resolution	support
3	Name XXXXXXXX	Return the company name	support

Lamp command type (Projector 'receives' commands)

NO	Code (character)	Function feature	Note
1	* 0 Lamp ?	Query the lamp ON/OFF	support
2	* 0 Lamp	Query the lamp hours	support

Lamp command type (Projector 'transmits' commands)

NO	Code (character)	Function feature	Note
1	Lamp 0	Return Lamp OFF status	support
2	Lamp 1	Return Lamp ON status	support
3	XXXX	Return Lamp hours	support

Source command type (Projector 'receives' commands)

NO	Code (character)	Function feature	Note
1	* 0 Src ?	Query source input type	support

3. DDC Data:

X1130 EDID：

EDID Block 0, Bytes 0-127 [00H-7FH]
Block Type: EDID 1.3

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	04	72	05	90	01	00	00	00
10	01	12	01	03	0E	00	00	78	0A	F4	46	A4	58	58	89	25
20	13	4F	5B	BF	EF	80	71	4A	81	80	81	40	90	40	A9	40
30	81	00	95	00	B3	00	A0	0F	20	00	31	58	1C	20	28	80
40	14	00	00	00	00	00	00	18	00	00	00	FD	00	30	56	1F
50	5C	11	00	0A	20	20	20	20	20	20	00	00	00	FC	00	58
60	31	31	33	30	0A	20	20	20	20	20	20	20	00	00	00	FF
70	00	4A	39	30	30	35	30	30	31	38	34	30	31	0A	00	6A

(08H-09H) ID Manufacturer Name _____ = ACR
(0AH-0BH) Product ID Code _____ = 9005
(0CH-0FH) Last 5 Digits of Serial Number _____ = 00001
(10H) Week of Manufacture _____ = 01
(11H) Year of Manufacture _____ = 2008
(12H) EDID Version Number _____ = 1
(13H) EDID Revision Number _____ = 3
(14H) VIDEO INPUT DEFINITION:
Analog Signal
0.700, 0.300 (1.000 Vp-p)
Sync on Green, Composite Sync, Separate Syncs
(15H) Maximum Horizontal Image Size _____ = mm
(16H) Maximum Vertical Image Size _____ = mm
(17H) Display Gamma _____ = 2.20

(18H) DPMS and Supported Feature(s):
Preferred Timing Mode
Display Type = R/G/B Color

(19H-22H) CHROMA INFO:
Red x - 0.644 Green x - 0.345 Blue x - 0.146 White x - 0.310
Red y - 0.347 Green y - 0.535 Blue y - 0.074 White y - 0.357

(23H) ESTABLISHED TIMING I:
720 x 400 @ 70Hz (IBM,VGA)
640 x 480 @ 60Hz (IBM,VGA)
640 x 480 @ 67Hz (Apple,Mac II)
640 x 480 @ 72Hz (VESA)
640 x 480 @ 75Hz (VESA)
800 x 600 @ 56Hz (VESA)
800 x 600 @ 60Hz (VESA)

(24H) ESTABLISHED TIMING II:
800 x 600 @ 72Hz (VESA)
800 x 600 @ 75Hz (VESA)
832 x 624 @ 75Hz (Apple,Mac II)
1024 x 768 @ 60Hz (VESA)
1024 x 768 @ 70Hz (VESA)
1024 x 768 @ 75Hz (VESA)
1280 x 1024 @ 75Hz (VESA)

(25H) Manufacturer's Reserved Timing:
1152 x 870 @ 75Hz (Apple,Mac II)

(38-53) Standard Timing Identification:

Standard Timing ID 1: 1152 x 864 @70Hz
Standard Timing ID 2: 1280 x 1024 @60Hz
Standard Timing ID 3: 1280 x 960 @60Hz
Standard Timing ID 4: 1400 x 1050 @60Hz
Standard Timing ID 5: 1600 x 1200 @60Hz
Standard Timing ID 6: 1280 x 800 @60Hz
Standard Timing ID 7: 1440 x 900 @60Hz
Standard Timing ID 8: 1680 x 1050 @60Hz

(36H-47H) Detailed Timing / Descriptor Block 1:
800x600 Pixel Clock: 40.00 MHz

Horizontal Image Size: 0 mm Vertical Image Size: 0 mm
Refreshed Mode: Non-Interlaced Normal Display - No Stereo

Horizontal:
Active Count: 800 pixels Blanking Count: 256 pixels
Sync Offset: 40 pixels Sync Pulse Width: 128 pixels
Border: 0 pixels Frequency: 37.88 kHz

Vertical:
Active Count: 600 lines Blanking Count: 28 lines
Sync Offset: 1 lines Sync Pulse Width: 4 lines
Border: 0 lines Frequency: 60.32 Hz

Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)

(48H-59H) Detailed Timing / Descriptor Block 2:

Monitor Range Limits:
Min Vertical Freq - 48 Hz
Max Vertical Freq - 86 Hz
Min Horiz. Freq - 31 kHz
Max Horiz. Freq - 92 kHz
Pixel Clock - 170 MHz
GTF - Not Used

(5AH-6BH) Detailed Timing / Descriptor Block 3:

Monitor Name:
X1130

(6CH-7DH) Detailed Timing / Descriptor Block 4:

Monitor Serial Number:
J90050018401

(7EH) Block No: No Extension EDID Block(s)
CheckSum OK

X1230 EDID :

EDID Block 0, Bytes 0-127 [00H-7FH]
Block Type: EDID 1.3

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	04	72	05	91	01	00	00	00
10	01	12	01	03	0E	00	00	78	0A	F4	46	A4	58	58	89	25
20	13	4F	5B	BF	EE	80	71	4A	81	80	81	40	81	00	95	00
30	61	59	01	01	01	01	64	19	00	40	41	00	26	30	18	88
40	36	00	00	00	00	00	00	18	00	00	00	FD	00	30	56	1F
50	5D	0B	00	0A	20	20	20	20	20	20	00	00	00	FC	00	58
60	31	32	33	30	0A	20	20	20	20	20	20	20	00	00	00	FF
70	00	4A	39	31	30	35	30	30	31	38	34	30	31	0A	00	59

(08H-09H) ID Manufacturer Name _____ = ACR
(0AH-0BH) Product ID Code _____ = 9105
(0CH-0FH) Last 5 Digits of Serial Number _____ = 00001
(10H) Week of Manufacture _____ = 01
(11H) Year of Manufacture _____ = 2008
(12H) EDID Version Number _____ = 1
(13H) EDID Revision Number _____ = 3

(14H) VIDEO INPUT DEFINITION:
Analog Signal
0.700, 0.300 (1.000 Vp-p)
Sync on Green, Composite Sync, Separate Syncs
(15H) Maximum Horizontal Image Size _____ = mm
(16H) Maximum Vertical Image Size _____ = mm
(17H) Display Gamma _____ = 2.20

(18H) DPMS and Supported Feature(s):
Preferred Timing Mode
Display Type = R/G/B Color

(19H-22H) CHROMA INFO:
Red x - 0.644 Green x - 0.345 Blue x - 0.146 White x - 0.310
Red y - 0.347 Green y - 0.535 Blue y - 0.074 White y - 0.357

(23H) ESTABLISHED TIMING I:
720 x 400 @ 70Hz (IBM,VGA)
640 x 480 @ 60Hz (IBM,VGA)
640 x 480 @ 67Hz (Apple,Mac II)
640 x 480 @ 72Hz (VESA)
640 x 480 @ 75Hz (VESA)
800 x 600 @ 56Hz (VESA)
800 x 600 @ 60Hz (VESA)

(24H) ESTABLISHED TIMING II:
800 x 600 @ 72Hz (VESA)
800 x 600 @ 75Hz (VESA)
832 x 624 @ 75Hz (Apple,Mac II)
1024 x 768 @ 60Hz (VESA)
1024 x 768 @ 70Hz (VESA)
1024 x 768 @ 75Hz (VESA)

(25H) Manufacturer's Reserved Timing:
1152 x 870 @ 75Hz (Apple,Mac II)

(38-53) Standard Timing Identification:
Standard Timing ID 1: 1152 x 864 @70Hz
Standard Timing ID 2: 1280 x 1024 @60Hz

Standard Timing ID 3: 1280 x 960 @60Hz
Standard Timing ID 4: 1280 x 800 @60Hz
Standard Timing ID 5: 1440 x 900 @60Hz
Standard Timing ID 6: 1024 x 768 @85Hz
Standard Timing ID 7 - Not Used
Standard Timing ID 8 - Not Used

(36H-47H) Detailed Timing / Descriptor Block 1:
1024x768 Pixel Clock: 65.00 MHz

Horizontal Image Size: 0 mm Vertical Image Size: 0 mm
Refreshed Mode: Non-Interlaced Normal Display - No Stereo

Horizontal:
Active Count: 1024 pixels Blanking Count: 320 pixels
Sync Offset: 24 pixels Sync Pulse Width: 136 pixels
Border: 0 pixels Frequency: 48.36 kHz

Vertical:
Active Count: 768 lines Blanking Count: 38 lines
Sync Offset: 3 lines Sync Pulse Width: 6 lines
Border: 0 lines Frequency: 60.00 Hz

Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)

(48H-59H) Detailed Timing / Descriptor Block 2:

Monitor Range Limits:
Min Vertical Freq - 48 Hz
Max Vertical Freq - 86 Hz
Min Horiz. Freq - 31 kHz
Max Horiz. Freq - 93 kHz
Pixel Clock - 110 MHz
GTF - Not Used

(5AH-6BH) Detailed Timing / Descriptor Block 3:

Monitor Name:
X1230

(6CH-7DH) Detailed Timing / Descriptor Block 4:

Monitor Serial Number:
J91050018401

(7EH) Block No: No Extension EDID Block(s)
CheckSum OK

X1230S EDID :

EDID Block 0, Bytes 0-127 [00H-7FH]
Block Type: EDID 1.3

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	04	72	05	92	01	00	00	00
10	01	12	01	03	0E	00	00	78	0A	F4	46	A3	58	58	88	24
20	13	50	59	BF	EE	80	71	4A	81	80	81	40	81	00	95	00
30	61	59	01	01	01	01	64	19	00	40	41	00	26	30	18	88
40	36	00	00	00	00	00	00	18	00	00	00	FD	00	30	56	1F
50	5D	0B	00	0A	20	20	20	20	20	20	00	00	00	FC	00	58
60	31	32	33	30	53	0A	20	20	20	20	20	20	00	00	00	FF
70	00	4A	39	32	30	35	30	30	31	38	34	30	31	0A	00	0A

(08H-09H) ID Manufacturer Name _____ = ACR
(0AH-0BH) Product ID Code _____ = 9205
(0CH-0FH) Last 5 Digits of Serial Number _____ = 00001
(10H) Week of Manufacture _____ = 01
(11H) Year of Manufacture _____ = 2008
(12H) EDID Version Number _____ = 1
(13H) EDID Revision Number _____ = 3

(14H) VIDEO INPUT DEFINITION:
Analog Signal
0.700, 0.300 (1.000 Vp-p)
Sync on Green, Composite Sync, Separate Syncs
(15H) Maximum Horizontal Image Size _____ = mm
(16H) Maximum Vertical Image Size _____ = mm
(17H) Display Gamma _____ = 2.20

(18H) DPMS and Supported Feature(s):
Preferred Timing Mode
Display Type = R/G/B Color

(19H-22H) CHROMA INFO:
Red x - 0.640 Green x - 0.345 Blue x - 0.142 White x - 0.313
Red y - 0.347 Green y - 0.531 Blue y - 0.074 White y - 0.350

(23H) ESTABLISHED TIMING I:
720 x 400 @ 70Hz (IBM,VGA)
640 x 480 @ 60Hz (IBM,VGA)
640 x 480 @ 67Hz (Apple,Mac II)
640 x 480 @ 72Hz (VESA)
640 x 480 @ 75Hz (VESA)
800 x 600 @ 56Hz (VESA)
800 x 600 @ 60Hz (VESA)

(24H) ESTABLISHED TIMING II:
800 x 600 @ 72Hz (VESA)
800 x 600 @ 75Hz (VESA)
832 x 624 @ 75Hz (Apple,Mac II)
1024 x 768 @ 60Hz (VESA)
1024 x 768 @ 70Hz (VESA)
1024 x 768 @ 75Hz (VESA)

(25H) Manufacturer's Reserved Timing:
1152 x 870 @ 75Hz (Apple,Mac II)

(38-53) Standard Timing Identification:
Standard Timing ID 1: 1152 x 864 @70Hz
Standard Timing ID 2: 1280 x 1024 @60Hz

Standard Timing ID 3: 1280 x 960 @60Hz
Standard Timing ID 4: 1280 x 800 @60Hz
Standard Timing ID 5: 1440 x 900 @60Hz
Standard Timing ID 6: 1024 x 768 @85Hz
Standard Timing ID 7 - Not Used
Standard Timing ID 8 - Not Used

(36H-47H) Detailed Timing / Descriptor Block 1:
1024x768 Pixel Clock: 65.00 MHz

Horizontal Image Size: 0 mm Vertical Image Size: 0 mm
Refreshed Mode: Non-Interlaced Normal Display - No Stereo

Horizontal:
Active Count: 1024 pixels Blanking Count: 320 pixels
Sync Offset: 24 pixels Sync Pulse Width: 136 pixels
Border: 0 pixels Frequency: 48.36 kHz

Vertical:
Active Count: 768 lines Blanking Count: 38 lines
Sync Offset: 3 lines Sync Pulse Width: 6 lines
Border: 0 lines Frequency: 60.00 Hz

Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)

(48H-59H) Detailed Timing / Descriptor Block 2:

Monitor Range Limits:
Min Vertical Freq - 48 Hz
Max Vertical Freq - 86 Hz
Min Horiz. Freq - 31 kHz
Max Horiz. Freq - 93 kHz
Pixel Clock - 110 MHz
GTF - Not Used

(5AH-6BH) Detailed Timing / Descriptor Block 3:

Monitor Name:
X1230S

(6CH-7DH) Detailed Timing / Descriptor Block 4:

Monitor Serial Number:
J92050018401

(7EH) Block No: No Extension EDID Block(s)
CheckSum OK

X1235 EDID :

EDID Block 0, Bytes 0-127 [00H-7FH]
Block Type: EDID 1.3

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	04	72	05	97	01	00	00	00
10	01	12	01	03	0E	00	00	78	0A	F4	46	A4	58	58	89	25
20	13	4F	5B	BF	EE	80	71	4A	81	80	81	40	81	00	95	00
30	61	59	01	01	01	01	64	19	00	40	41	00	26	30	18	88
40	36	00	00	00	00	00	00	18	00	00	00	FD	00	30	56	1F
50	5D	0B	00	0A	20	20	20	20	20	20	00	00	00	FC	00	58
60	31	32	33	35	0A	20	20	20	20	20	20	20	00	00	00	FF
70	00	4A	39	37	30	35	30	30	31	38	34	30	31	0A	00	48

(08H-09H) ID Manufacturer Name _____ = ACR
(0AH-0BH) Product ID Code _____ = 9705
(0CH-0FH) Last 5 Digits of Serial Number _____ = 00001
(10H) Week of Manufacture _____ = 01
(11H) Year of Manufacture _____ = 2008
(12H) EDID Version Number _____ = 1
(13H) EDID Revision Number _____ = 3

(14H) VIDEO INPUT DEFINITION:
Analog Signal
0.700, 0.300 (1.000 Vp-p)
Sync on Green, Composite Sync, Separate Syncs
(15H) Maximum Horizontal Image Size _____ = mm
(16H) Maximum Vertical Image Size _____ = mm
(17H) Display Gamma _____ = 2.20

(18H) DPMS and Supported Feature(s):
Preferred Timing Mode
Display Type = R/G/B Color

(19H-22H) CHROMA INFO:
Red x - 0.644 Green x - 0.345 Blue x - 0.146 White x - 0.310
Red y - 0.347 Green y - 0.535 Blue y - 0.074 White y - 0.357

(23H) ESTABLISHED TIMING I:
720 x 400 @ 70Hz (IBM,VGA)
640 x 480 @ 60Hz (IBM,VGA)
640 x 480 @ 67Hz (Apple,Mac II)
640 x 480 @ 72Hz (VESA)
640 x 480 @ 75Hz (VESA)
800 x 600 @ 56Hz (VESA)
800 x 600 @ 60Hz (VESA)

(24H) ESTABLISHED TIMING II:
800 x 600 @ 72Hz (VESA)
800 x 600 @ 75Hz (VESA)
832 x 624 @ 75Hz (Apple,Mac II)
1024 x 768 @ 60Hz (VESA)
1024 x 768 @ 70Hz (VESA)
1024 x 768 @ 75Hz (VESA)

(25H) Manufacturer's Reserved Timing:
1152 x 870 @ 75Hz (Apple,Mac II)

(38-53) Standard Timing Identification:
Standard Timing ID 1: 1152 x 864 @70Hz
Standard Timing ID 2: 1280 x 1024 @60Hz

Standard Timing ID 3: 1280 x 960 @60Hz
Standard Timing ID 4: 1280 x 800 @60Hz
Standard Timing ID 5: 1440 x 900 @60Hz
Standard Timing ID 6: 1024 x 768 @85Hz
Standard Timing ID 7 - Not Used
Standard Timing ID 8 - Not Used

(36H-47H) Detailed Timing / Descriptor Block 1:
1024x768 Pixel Clock: 65.00 MHz

Horizontal Image Size: 0 mm Vertical Image Size: 0 mm
Refreshed Mode: Non-Interlaced Normal Display - No Stereo

Horizontal:
Active Count: 1024 pixels Blanking Count: 320 pixels
Sync Offset: 24 pixels Sync Pulse Width: 136 pixels
Border: 0 pixels Frequency: 48.36 kHz

Vertical:
Active Count: 768 lines Blanking Count: 38 lines
Sync Offset: 3 lines Sync Pulse Width: 6 lines
Border: 0 lines Frequency: 60.00 Hz

Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)

(48H-59H) Detailed Timing / Descriptor Block 2:

Monitor Range Limits:
Min Vertical Freq - 48 Hz
Max Vertical Freq - 86 Hz
Min Horiz. Freq - 31 kHz
Max Horiz. Freq - 93 kHz
Pixel Clock - 110 MHz
GTF - Not Used

(5AH-6BH) Detailed Timing / Descriptor Block 3:

Monitor Name:
X1235

(6CH-7DH) Detailed Timing / Descriptor Block 4:

Monitor Serial Number:
J97050018401

(7EH) Block No: No Extension EDID Block(s)
CheckSum OK

X1230K EDID :

EDID Block 0, Bytes 0-127 [00H-7FH]
Block Type: EDID 1.3

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	04	72	05	98	01	00	00	00
10	01	12	01	03	0E	00	00	78	0A	F4	46	A4	58	58	89	25
20	13	4F	5B	BF	EE	80	71	4A	81	80	81	40	81	00	95	00
30	61	59	01	01	01	01	64	19	00	40	41	00	26	30	18	88
40	36	00	00	00	00	00	00	18	00	00	00	FD	00	30	56	1F
50	5D	0B	00	0A	20	20	20	20	20	20	00	00	00	FC	00	58
60	31	32	33	30	4B	0A	20	20	20	20	20	20	00	00	00	FF
70	00	4A	39	38	30	35	30	30	31	38	34	30	31	0A	00	20

(08H-09H) ID Manufacturer Name _____ = ACR
(0AH-0BH) Product ID Code _____ = 9805
(0CH-0FH) Last 5 Digits of Serial Number _____ = 00001
(10H) Week of Manufacture _____ = 01
(11H) Year of Manufacture _____ = 2008
(12H) EDID Version Number _____ = 1
(13H) EDID Revision Number _____ = 3

(14H) VIDEO INPUT DEFINITION:
Analog Signal
0.700, 0.300 (1.000 Vp-p)
Sync on Green, Composite Sync, Separate Syncs
(15H) Maximum Horizontal Image Size _____ = mm
(16H) Maximum Vertical Image Size _____ = mm
(17H) Display Gamma _____ = 2.20

(18H) DPMS and Supported Feature(s):
Preferred Timing Mode
Display Type = R/G/B Color

(19H-22H) CHROMA INFO:
Red x - 0.644 Green x - 0.345 Blue x - 0.146 White x - 0.310
Red y - 0.347 Green y - 0.535 Blue y - 0.074 White y - 0.357

(23H) ESTABLISHED TIMING I:
720 x 400 @ 70Hz (IBM,VGA)
640 x 480 @ 60Hz (IBM,VGA)
640 x 480 @ 67Hz (Apple,Mac II)
640 x 480 @ 72Hz (VESA)
640 x 480 @ 75Hz (VESA)
800 x 600 @ 56Hz (VESA)
800 x 600 @ 60Hz (VESA)

(24H) ESTABLISHED TIMING II:
800 x 600 @ 72Hz (VESA)
800 x 600 @ 75Hz (VESA)
832 x 624 @ 75Hz (Apple,Mac II)
1024 x 768 @ 60Hz (VESA)
1024 x 768 @ 70Hz (VESA)
1024 x 768 @ 75Hz (VESA)

(25H) Manufacturer's Reserved Timing:
1152 x 870 @ 75Hz (Apple,Mac II)

(38-53) Standard Timing Identification:
Standard Timing ID 1: 1152 x 864 @70Hz
Standard Timing ID 2: 1280 x 1024 @60Hz

Standard Timing ID 3: 1280 x 960 @60Hz
Standard Timing ID 4: 1280 x 800 @60Hz
Standard Timing ID 5: 1440 x 900 @60Hz
Standard Timing ID 6: 1024 x 768 @85Hz
Standard Timing ID 7 - Not Used
Standard Timing ID 8 - Not Used

(36H-47H) Detailed Timing / Descriptor Block 1:
1024x768 Pixel Clock: 65.00 MHz

Horizontal Image Size: 0 mm Vertical Image Size: 0 mm
Refreshed Mode: Non-Interlaced Normal Display - No Stereo

Horizontal:
Active Count: 1024 pixels Blanking Count: 320 pixels
Sync Offset: 24 pixels Sync Pulse Width: 136 pixels
Border: 0 pixels Frequency: 48.36 kHz

Vertical:
Active Count: 768 lines Blanking Count: 38 lines
Sync Offset: 3 lines Sync Pulse Width: 6 lines
Border: 0 lines Frequency: 60.00 Hz

Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)

(48H-59H) Detailed Timing / Descriptor Block 2:

Monitor Range Limits:
Min Vertical Freq - 48 Hz
Max Vertical Freq - 86 Hz
Min Horiz. Freq - 31 kHz
Max Horiz. Freq - 93 kHz
Pixel Clock - 110 MHz
GTF - Not Used

(5AH-6BH) Detailed Timing / Descriptor Block 3:

Monitor Name:
X1230K

(6CH-7DH) Detailed Timing / Descriptor Block 4:

Monitor Serial Number:
J98050018401

(7EH) Block No: No Extension EDID Block(s)
CheckSum OK